MARTEL FOREST

INDEPENDENT FOREST AUDIT
2002-2007

Arbex Forest Resource Consultants Ltd.

Oxford Mills, Ontario

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1.0. EXECUTIVE SUMMARY

This report presents the findings of the Independent Forest Audit (IFA) of the Martel Forest (SFL # 550390) for the five year period of April 1st, 2002 to March 31st, 2007. The Martel Forest is a new management unit (2006) which is an amalgamation of the Superior Forest (SFL # 550390) and the J.E. Martel Forest (SFL # 541842). Tenure for the Superior Forest was transferred from Weyerhaeuser to Tembec in January 2004. In January 2005, responsibility for the management of the J.E. Martel Forest was transferred from Domtar Inc. to Tembec. As a result of the transfer, Tembec retains two Sustainable Forest Licences; one for the Superior Forest (# 550390) with a 2002-2022 term[1] and one for the J.E. Martel Forest (# 541842) with a 2000- 2020 term. These licences had yet to be amalgamated into a single licence at the time of the audit.

The transfer of the J.E. Martel Forest to Tembec resulted in a decision to prepare one management plan for the Superior-Martel Forest. The plan was titled the 2006 Superior-Martel Forest Management Plan (FMP). The Forest is currently referred to as the Martel Forest.

The audit conformed to the requirements of the 2007 Independent Forest Audit Process and Protocol (IFAPP) prepared by the Ontario Ministry of Natural Resources (OMNR). The IFA process is based on a detailed assessment of eight broad principles. Each principle has associated criteria which are examined to determine if the management of the Forest was in compliance with provincial legislation, regulations and policies that were in effect during the audit term.

The audit assessed the forest management activities of Tembec Enterprises Inc. and the Ontario Ministry of Natural Resources (OMNR) Chapleau District. Corporate and Regional OMNR and overlapping licensees and contractors are considered auditees to the extent that forest management activities carried out by them are the subject of audit examination.

Specifically, the audit assessed:

- The last four years of the implementation of the 2001-2006 Superior FMP.
- The last four years of the implementation of the 2001-2006 Pineland-Martel FMP on the J.E. Martel portion of the Forest[2].

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[1] SFL# 550390 is conditional on the Minister of Natural Resources being satisfied that Tembec met its contractual obligations for the SFL based on the results of the Independent Forest Audit of the Superior Forest for the 1997-2002 term.

[2] In January 2005, responsibility for the management of the J.E. Martel Forest transferred from Domtar Inc. to Tembec.

- The first year of implementation of the 2006 Superior-Martel FMP.
- The planning and development of the 2006 Superior-Martel FMP.

We conclude that the implementation of forest management on the Martel Forest was substantially in compliance with the purposes of the Crown Forest Sustainability Act (CFSA) and in accordance with the requirements of the Forest Management Planning Manual (FMPM). It is our conclusion that the Martel Forest was well managed during the audit term for the following reasons:

- Forest management planning activities adhered to FMPM requirements.
- A Local Citizens Committee (LCC) was properly constituted and participated in the planning and implementation of forest management.
- Appropriate information was available to support forest management planning efforts (although information on other values was only minimally sufficient to meet planning obligations).
- Areas of Concern were appropriately protected through proper planning and prescription implementation.
- Forest management activities (e.g. harvest, renewal, tending) adhered to appropriate manuals and operations and were implemented with no evidence of environmental degradation.
- Forest operations were compliant with forest management standards.
- Compliance monitoring was appropriate for the level of operations.
- Forest management records were well organized, accessible and current.
- OMNR met its obligations to First Nations with respect to EA Condition 77 & Condition 34. OMNR and Tembec fostered productive relations with interested First Nations on the Forest.
- Recommendations of the 2002 IFA were satisfactorily addressed.

We recognize the Chapleau District's First Nation Task Team initiative as a Best Management Practice for effectively engaging aboriginal communities in forest management and other land use issues during the audit period.

The audit did identify some shortcomings with respect to the delivery of forest management and we provide six recommendations and three suggestions to address the following:

- The OMNR Chapleau District faces serious issues with respect to funding and staff turn-over/vacancies which undermine its ability to collect information, gain and retain field experience, and make decisions based on local knowledge.

- The requirement for a "netted down" High Potential Cultural Heritage digital layer to amend the 2006 FMP remains outstanding.
- Continual changes to forest management guidelines, forest boundaries and reporting standards have seriously impaired the forest manager's ability to assess the sustainability of the forest.
- Two Individual environmental Assessment (IEA) requests were submitted to MOE. While all procedural requirements were met, we have two principal concerns. Firstly, while we recognize the public right to request an IEA at any time during the planning or implementation of a forest management plan, the IEA process can be initiated without a requirement that the proponent participate in the available FMP planning, consultation, and issue resolution process prior to making the request. This circumstance can undermine the work of the LCC, the SFL holder and the OMNR. Secondly, the IEA requests in this instance were provincial in scope but were submitted locally during the forest management planning process. Issues of provincial scope should be dealt with at a higher (provincial) scale to expedite their disposition and to avoid local impacts.
- Forest management deferrals resulting from the application of the IEA process delayed forest management activities on a significant area of the Martel Forest. As a result of the deferrals, treatment backlogs exist and some losses of the investment in site preparation and forest renewal have occurred. Additionally, timelines for achieving the intended effects of silviculture (i.e. improvements to growth and yield by reduced vegetative competition) will have been extended. These circumstances have implications with respect to the achievement of FMP objectives and sustainable forest management. Monitoring of sites and remedial action(s) will be required to ensure that investments in silviculture are not lost and that long term forest management objectives are achieved.

Despite the shortcomings noted in this audit report, we conclude that forest sustainability is being achieved on the Martel Forest and that for the audit period Tembec met its SFL contractual obligations. We therefore recommend that the Minister extend Tembec's Sustainable Forest Licences # 550390 and # 541842 for a further five years.

2.0. INTRODUCTION

This report presents the findings of the Independent Forest Audit (IFA) of the Martel Forest[3] (SFL # 550390 and SFL # 541842) for the period of April 1st, 2002 to March 31st, 2007. The audit assessed the forest management activities of Tembec Enterprises Inc. and the Ontario Ministry of Natural Resources (OMNR) Chapleau District. Corporate and Regional OMNR and overlapping licensees and contractors are considered auditees to the extent that forest management activities carried out by them are the subject of audit examination.

Specifically, the audit assessed:

- The last four years of the implementation of the 2001-2006 Superior Forest Management Plan (FMP).
- The last four years of the implementation of the 2001-2006 Pineland-Martel FMP on the J.E. Martel portion of the Forest.
- The first year of implementation of the 2006-2011 Superior-Martel Forest FMP.
- The planning and development of the 2006 Superior-Martel Forest FMP.

The Martel Forest is a new management unit (2006) which is an amalgamation of the Superior Forest (SFL # 550390) and the J.E. Martel Forest (SFL # 541842)[4]. Tenure for the Superior Forest was transferred from Weyerhaeuser to Tembec in January 2004. In January 2005, responsibility for the management of the Martel Forest was transferred from Domtar Inc. to Tembec as part of a "Fairway Agreement" between the two companies. That agreement resulted in the closure of Domtar's sawmill in Chapleau, and the processing of all spruce, pine and fir (SPF) wood from the amalgamated forest at Tembec's Chapleau sawmill.

The transfer of the J.E. Martel SFL to Tembec resulted in a decision to prepare one management plan for the Superior-Martel Forest. In the past, the Superior Forest was managed as a single entity with its own management plan, whereas the J.E. Martel Forest was included in the Pineland-Martel 2001-2021 Forest Management Plan. Prior to the 2001 FMP the J.E. Martel Forest was managed under a separate FMP.

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[3] In this report the nomenclature "Superior-Martel Forest" and the "Martel Forest" are used interchangeably.

[4] At the time of the audit the two SFL licences had yet to be amalgamated into a single licence for the Martel Forest.

Prior Independent Forest Audits were conducted on the Pineland-Martel Forest and the Superior Forest in 2002. The Martel Forest is certified by the Forest Stewardship Council (FSC) as being sustainably managed.

2.1. Audit Process

Ontario legislation requires that Forest Management Units (FMU) and Sustainable Forest Licences (SFL) be audited every five years by an Independent Auditor. The audit applies to the Ontario Ministry of Natural Resources (OMNR), and all licencees on the FMU. The audit considers the compliance aspect of forest management planning by reviewing the management plan in relation to specific planning manual requirements in place at the time of plan approval, including a review of actual operations and required monitoring and reporting. The effectiveness of forest management activities is examined based on planned vs. actual results as verified through record examination and field sampling. The audit reviews whether actual results in the field are comparable with planned results and determines if they are accurately reported.

The Independent Forest Audit Process and Protocol (IFAPP), developed by the OMNR, provides a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP contains individual procedures that direct the independent auditors to collect, analyze, interpret and document appropriate information to determine if various criteria have been met.

The results of the evaluation of evidence against the criteria determine the audit findings. Those findings are then analyzed and aggregated to determine the outcome of the audit.

The IFAPP states that the purpose of the independent forest audit is to assess:

- The compliance of forest management planning activities with the Forest Management Planning Manual (FMPM) and the Crown Forest Sustainability Act (CFSA).
- The compliance of forest management activities with the CFSA and with the Forest Management Plans, the manuals approved under the CFSA and applicable guides.
- The effectiveness of forest management activities in meeting the forest management objectives set out in the Forest Management Plans, as measured in relation to the criteria established for the audit.
- The relative success of forest management activities carried out compared to those that were planned.
- The effectiveness of any Action Plans implemented to remedy shortcomings revealed by a previous audit.

- The licensee's compliance with the terms and conditions of the forest resources licence.

The audit process is based on a detailed assessment of eight IFAPP principles:

- Commitment
- Public participation
- Forest management planning
- Plan implementation
- System support
- Monitoring
- Achievement of management objectives and sustainability.
- Contractual obligations

Each IFAPP principle has a series of specific criteria which, if met, will result in the achievement of that principle. The specific criteria are based on applicable legislation, manuals, and guidelines related to forest management contained in the 2007 IFAPP.

The audit was conducted by Arbex Forest Resource Consultants Ltd. (Arbex). The audit team consisted of three professional foresters, an economist, and three specialists with expertise in fish and wildlife management, forest management planning, land use planning, public consultation, and compliance. A list of audit team members and their qualifications is presented in Appendix B.

The audit consisted of the following elements:

Audit Plan: An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to Tembec, the OMNR Chapleau District and the chairperson of the Local Citizens Committee (LCC).

Public Notices: Several methods were used to solicit public participation and comment in the audit. These included the placement of a notice in the Chapleau Express newspaper; a random mail out to 35% of the individuals on the Superior-Martel FMP mailing list and invitations by mail, email and telephone to First Nations and members of the Local Citizens Committee to participate in the audit.

All letters and notices provided Arbex contact co-ordinates (toll-free, fax and telephone numbers and email address), and an invitation to complete a questionnaire (included in

the mail out or on-line) about forest management on the Martel Forest during the audit period[5].

Field Site Selection: Field site selections were made by the Lead Auditor and the Arbex GIS Specialist in June. Site selections were confirmed and finalized with Tembec staff in conjunction with a Pre-Audit Meeting held with Tembec, Chapleau OMNR and the LCC Chair on July 12th. The meeting outlined the purpose, expectations and deliverables of the audit, reviewed the sample site selections and discussed elements of the Audit Plan.

Pre-audit Document Review and Interviews: To prepare for the audit the 2001 Superior FMP, the 2001Pineland- Martel FMP and the 2006 Superior-Martel FMP were reviewed. Additionally, relevant reporting documents associated with development of the 2006 plan (e.g. planning team minutes) and the implementation of the 2001 plans (e.g. Annual Work Schedules, Annual Reports) were examined. Telephone interviews and e-mail exchanges were undertaken with representative stakeholders.

Site Audit: The audit team spent seven days in Chapleau conducting the field audit and additional document reviews and interviews. One hundred and twelve (112) individual sites were visited by road and helicopter during the audit. The field audit sampled between 11% and 25% of the forest management activities (including road maintenance and construction) that had occurred over the five-year audit period (Table 1). Sample sites were stratified to ensure representation by silvicultural system (e.g. harvest systems such as careful logging or traditional clearcut), silvicultural activity (e.g. tree planting, mechanical site preparation) season of operation, contractors, and year of operation. The team also viewed the application of Areas of Concern (AOC) prescriptions, water crossings, and road construction and maintenance work. Areas listed in the "Forest Renewal and Maintenance Agreement" and invoiced under the Forest Renewal Trust Specified Procedures Report were also visited to ensure conformity between invoiced and actual activities. We reviewed supplemental aerial photography (SAP) for the audit period to determine the presence of riparian buffers. A sub-sample of the SAP digital imagery files was imported into a desktop Geographic Information System (GIS) and buffer strip widths were measured.

The field inspections included site-specific (intensive) and landscape-scale (extensive) examinations. Individual sites were selected to represent a primary activity (e.g. harvesting, site preparation tending, etc.); however, all associated activities at the site were assessed at the same time, allowing the team to augment the planned sampling intensity.

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[5] Six responses to the survey questionnaire were received (~1% response rate).

Table 1. IFA Field Sampling Intensity on the Martel Forest

Activity	Total Area (Ha) / Number (2002-2007)	Area (Ha) Sampled (Primary & Secondary)	Number of Sites Visited (Primary)	Percent[6] Sampled (%)
Harvest	34,833	4,735	31	14
Natural Renewal	16,169	1,880	21	12
Artificial Renewal	18,169	4,010	13	22
Site Preparation (Mechanical & Chemical)	12,480	2,534	24	20
Aerial & Ground Tending	20,326	3,973	20	20
Pre-commercial Thinning	952	136	3	14
Free-to-Grow	56,756	6,775	21	12
Specified Procedures Report Sites	11,009	2,790	35	25
Areas of Concern[7]		37 km		
Water Crossings	160		18	11

A member of the audit team attended a regularly scheduled LCC meeting to discuss LCC issues and concerns with respect to the 2006 forest management planning process and the implementation of the management plans.

Report: This report provides a description of the audit process and a discussion of audit findings and conclusions. Recommendations are directed at deficiencies in forest management and associated processes that require corrective action. Recommendations must be dealt with in a formal Action Plan developed by the SFL holder and the OMNR within two months of receipt of the final Audit Report. Suggestions contained in this report are directed at less serious issues, and are simply value-added advice from the auditors' perspective. Auditee's are not formally required to respond to suggestions, but are encouraged to do so to enhance resource management performance.

[6] Percent sampled represents a combination of primary and secondary audit activities inspected on a site.
[7] A significant number of AOCs on the forest are linear features (e.g. riparian areas) as opposed to point features (e.g. nest sites). For this reason most of the assessment was area based.

A "Best Practice" highlights a forest management practice or level of performance that we felt was exceptional and recognizes the efforts of the SFL holder and/or the OMNR.

2.2. Forest Management Context

The Martel Forest is a new management unit (2006) which is an amalgamation of the Superior Forest (SFL # 550390) and the J.E. Martel Forest (SFL # 541842). Tembec administers management and planning activities in accordance with approved OMNR policies and procedures. It is responsible for directing harvesting, renewal and planning for the forest, maintaining the Forest Resource Inventory (FRI), monitoring compliance and ensuring that the Forest is managed sustainably. Forest management activities are coordinated through its office at the Chapleau Sawmill and regional office in Timmins.

Chapleau District has the lead for all OMNR forest management planning and related responsibilities on the Forest as the majority of the area is situated within the District's administrative boundary (small portions are situated within the Wawa District). The Chapleau District is administered regionally by the OMNR Northeast Regional Office in Timmins. The OMNR is responsible for FMP review and approval, non- forest values data collection and maintenance, ensuring that forest operations are in compliance with the approved plan and for maintaining communications with First Nations (FN) communities.

2.2.1. Map of the Management Unit

Figure 1 shows the location of the Martel Forest.

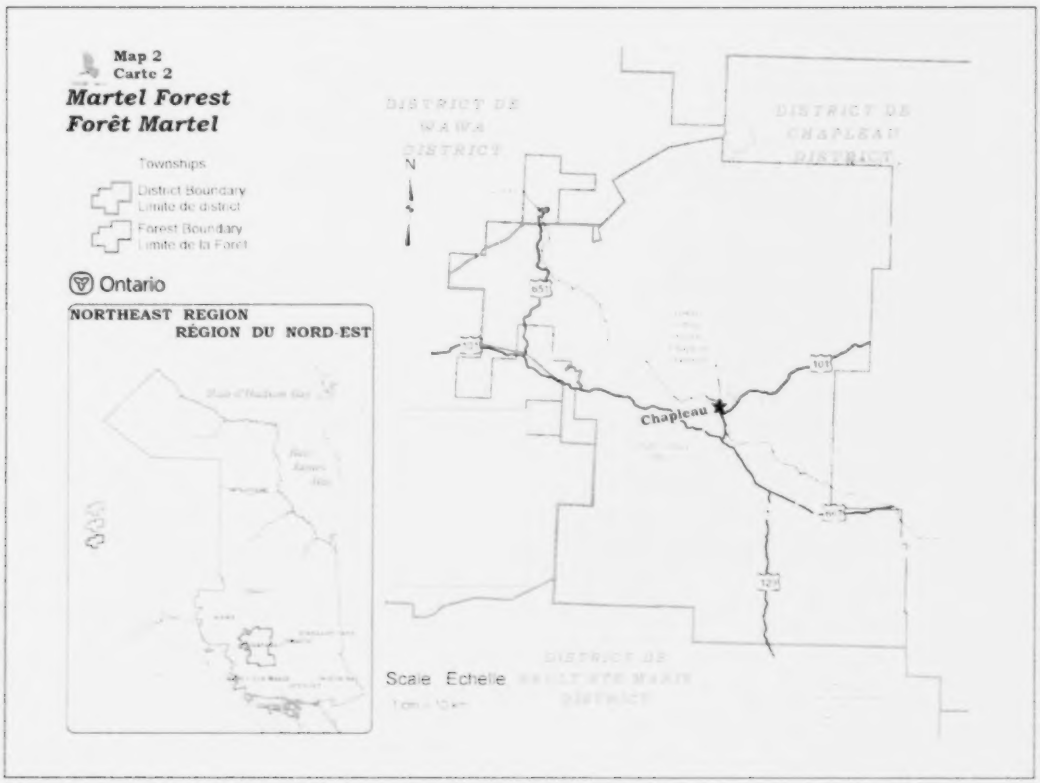


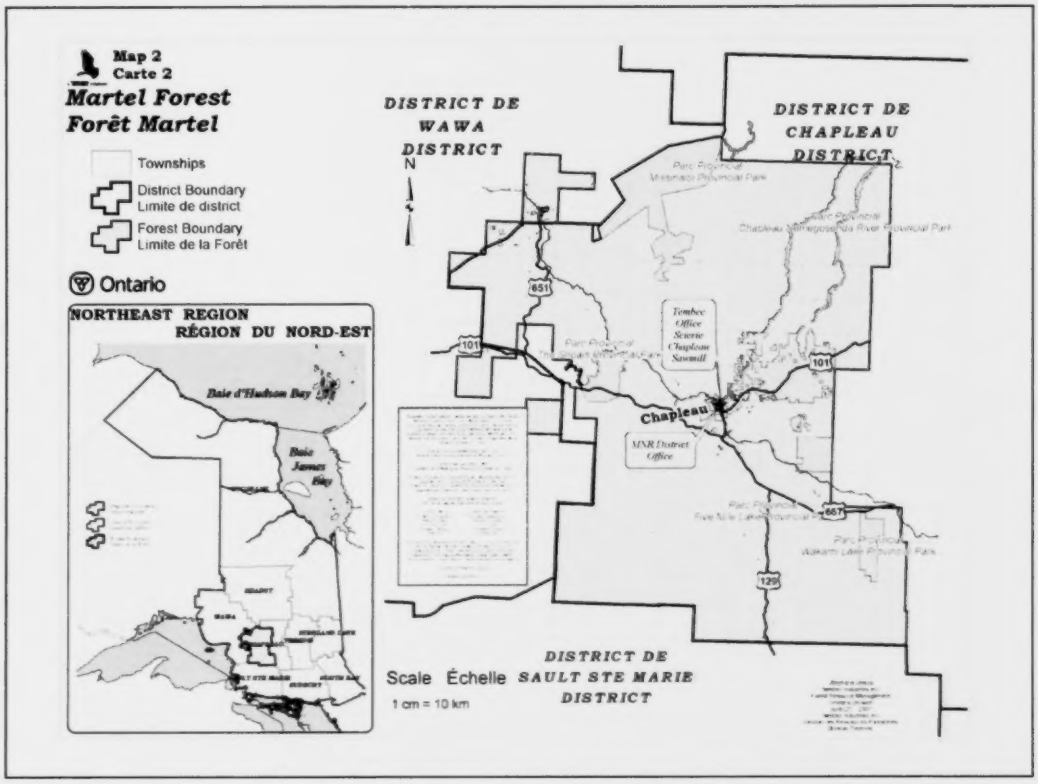
FIGURE 1. LOCATION OF THE MARTEL FOREST

2.2.2. Description of the Management Unit

The Martel Forest covers an area of 1,191,274 hectares. Managed Crown Forest covers 1,004,704 hectares (84%) of which 850,200 ha are classified as production forest. Water and non-forested land occupies 81,727 hectares of the managed Crown area. Table 2 provides a breakdown of managed Crown land forest area by land classification.

Ten Provincial Parks and three conservation reserves are situated within or bordering the Forest. These sites comprise 13.5% of the land area and occupy 135,457 hectares. Approximately 9% (107,483 ha) of the area is classified as water. A significant area is classified as depleted (106,552 ha).

The Chapleau Crown Game Preserve (CCGP) encompasses 7,222 km^2 with more than half of it falling within the Forest. The CCGP was created in 1925 as a wildlife refuge



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The Chapleau Crown Game Preserve (CCGP) encompasses 7,222 km^2 with more than half of it falling within the Forest. The CCGP was created in 1925 as a wildlife refuge

and sanctuary. Trapping and hunting by non-aboriginals is prohibited[8]; however, all other activities are permitted.

The height of land separating the Atlantic and Arctic watersheds runs through the management unit in a southeast to northwesterly direction. The major river systems draining into the Atlantic watershed include the Wenebegon, Aubinadong, Montreal and Dog Lake – Michipicoten. The major river systems draining into the Arctic watershed include the Missinaibi and the Chapleau-Nemogosenda.

In addition to the township of Chapleau, the communities of Sultan, Devon and Missanabie are located within the Forest boundary.

TABLE 2. MANAGED CROWN LAND AREA BY LAND CLASSIFICATION (SUPERIOR-MARTEL FOREST).

Land Class	Managed Crown Forest Area (Ha)	Production Forest Area (Ha)	Percent of Managed Crown Forest Area
Non Productive Forest[9]	54,352		5.8
Protection Forest[10]	18,418		2.0
Production Forest[11]	868,618		92.0
Forest Stands		739,024	79.0
Barren & Scattered		4,625	0.5
Depleted		106,552	11.0
Total	941,388	850,201	90.3

Source: FMP-1 Management Unit Land Summary (Superior-Martel Forest)

Figure 2 shows the percent area by working group for the Martel Forest's Crown managed productive forest.

The Forest is within the Missinaibi-Cabonga section of the boreal forest region. Boreal species include jack pine, black spruce, white spruce, balsam fir, trembling aspen, and

[8] Local First Nations assert their right to hunt and trap in the CCGP.
[9] Non Productive Forest is considered incapable of growing commercial timber crops.

[10] Protection Forest includes forest growing on environmentally sensitive areas and islands where forest management activities are not normally practiced.
[11] Production Forest is land capable of growing commercial timber crop and includes Forest. Stands, Depleted areas, Barren & Scattered and Not Satisfactorily Regenerated land.

white birch. Minor species include eastern white cedar, black ash, largetooth aspen, and balsam poplar.

Although boreal in nature the Forest does contain species common to the Great Lakes St. Lawrence Forest Region as scattered individuals or as isolated patches. These include white and red pine, hard maple, yellow birch and eastern hemlock.

While it is a mixed forest, pure stands of jack pine occur on dry to fresh outwash sand and pure stands of black spruce are found on moist to wet organic sites. Four working groups account for 92% of the productive forest area (see Figure 2). These include spruce (black and white) jack pine, poplar and birch. White birch and poplar are the dominant hardwood species occupying 235,188 ha and 131,894 hectares respectively. Spruce and jack pine stands occupy 168,527 and 140,395 hectares.

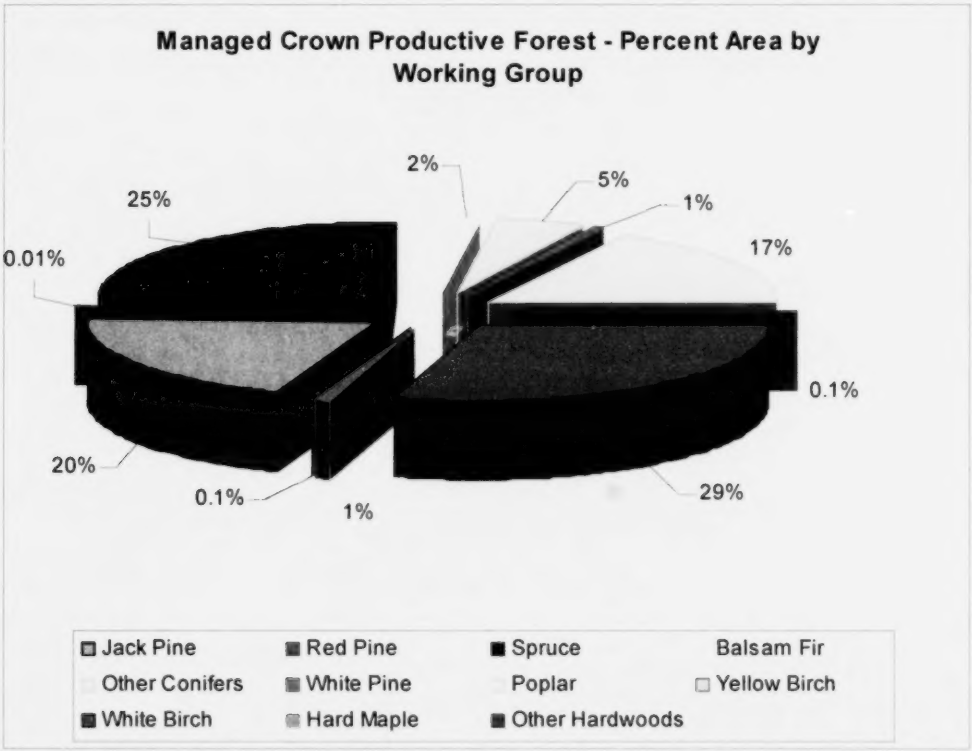

FIGURE 2. MANAGED CROWN PRODUCTIVE FOREST - PERCENT AREA BY WORKING GROUP

The species composition, age class distribution and structure of the forest have been strongly influenced by human activities (logging and fire suppression) and natural events such as spruce budworm infestations and wildfires. With respect to the current forest composition, research indicates that the dominant species composition has shifted from conifer to intolerant hardwoods. This trend has been observed in much of the managed boreal forest area and we discuss its potential implications on long term forest sustainability in Section 3.4.3. It is believed that area occupied by conifer

(spruce, pine, balsam fir) has declined from a pre-settlement level of 75% to approximately 53% while the area dominated by intolerant hardwoods (poplar and birch) has increased by approximately 20%[12]. There is no apparent change in the tolerant hardwoods (1%). The area of white pine has also declined significantly with a lesser decline in red pine.

Human activities such as logging and fire suppression combined with natural disturbance events (i.e. insect infestations) have resulted in an age class structure where most forest stands are younger than 100 years of age (Figure 3). Forest stands that are geographically close to each other also may have a diverse age class structure. Achieving the desired available harvest area age class structure within forecast harvest allocations therefore proved challenging during the development of the 2006 FMP (Section 3.3.7.) Additionally, the current age class structure of the forest implies that the availability of preferred habitat for some wildlife species will change over time. Generally, for species that require older forest type conditions (i.e. marten) there will be a decline in preferred habitat for the short to medium term (40-60 years) and for species that utilize younger forests an increase in preferred habitat is expected.

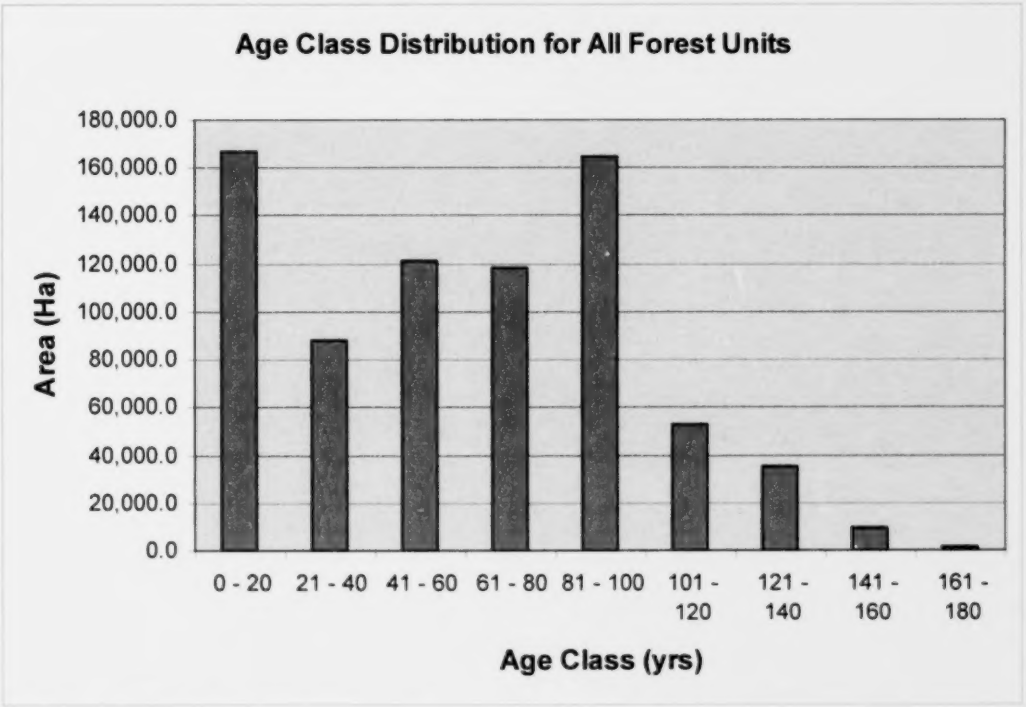

FIGURE 3. AGE CLASS DISTRIBUTION FOR ALL FOREST UNITS IN THE MARTEL FOREST

[12] Pinto, F. et al. 2004. Pre-settlement forest composition of the Superior-Martel Forest. Ontario Ministry of Natural Resources Southern Science. & Information, North Bay.

There is a diversity of wildlife species common to the boreal forest. Identified species at risk include the Bald Eagle, Short Eared Owl and Great Gray Owl.

The forecast annual harvest of spruce-pine-fir (SPF) is 643,000 m^3. Forecast hardwood requirements are 258,864 m^3 of poplar and 150,000 m^3 of white birch. Opportunity markets utilize varying volumes of cedar, larch, white birch and pine.

The Forest provides wood products (under Minister directive) to the Tembec Chapleau Sawmill, Leveque Plywood Limited (Hearst), Longlac Wood Industries Inc. (Longlac), Grant Forest Products (Timmins and Englehart), Weyerhaeuser Company Ltd. (Wawa) and Birchland Veneer Limited (Thessalon). Additionally, St. Mary's Paper (Sault Ste. Marie), Domtar (Espanola), Midway Lumber Mills (Thessalon) and Devon Mills (near Chapleau) have also traditionally received wood.

2.2.3. Forest Management Issues

The following section summarizes key forest management issues and challenges that were encountered during the preparation of the 2006 Superior-Martel Forest FMP. Where these issues emerged as part of our audit findings they are discussed in the appropriate sections of the report.

Forest Management Plan Production Schedule.

The Superior and Martel Forests were originally on the same cycle for the development of forest management plans (i.e. renewal in April 2006). Although the planning process had already commenced for both Forests, Tembec felt there were efficiencies if one management plan were developed. A revised planning schedule had to be developed and the aggressive production schedule maintained. Completion of the plan required considerable overtime on the part of all involved to meet the plan production schedule. The planning process is discussed in Section 3.3.1.

Issue Resolution and Individual Environmental Assessment Requests (IEA)

During the 2006 plan development there were two requests for Individual Environmental Assessments (IEA). One individual had participated in the issue resolution process while the other did not. Both requests were grounded in provincial/national level environmental and philosophical ideologies associated with the use of chemicals and the impacts of logging. The LCC was concerned that under the current process a proponent did not have to participate in the forest management process (i.e. planning, discussions, issue resolution) prior to requesting an IEA. The IEA delayed forest operations and resulted in significant social and economic impacts. This issue is discussed in Section 3.2.2.

Non-Timber Values Database

The OMNR has responsibility for the production of data and management of non-timber values. It has experienced difficulties meeting its commitment to inventory, monitor and update information on those values. The impacts of an incomplete and/or inaccurate non-timber values database include the potential for inadequate protection of a value (if missed), unnecessary restrictions and loss of available forest for the forest industry (if inaccurate or out-of-date), and the need for numerous amendments to the plan as values are updated or discovered. The issue is discussed in Section 3.4.1.

High Potential Cultural Heritage Modeling

The "Timber Management Guidelines for the Protection of Cultural Heritage Resources (1991)" outlines a methodology to identify and protect heritage resource values during the forest management planning process. The *Cultural Heritage Predictive Model* (CHPM) developed by the OMNR, was used to identify a significant area as high potential cultural heritage value. The District OMNR conducted a "*netdown exercise*" which was sent to the Cultural Heritage Specialist in the Forest Management Branch. Tembec has yet to receive an updated digital layer to be amended into the FMP. This issue is discussed in Section 3.4.1.

The Emulation of Natural Disturbance and Conflicting Management Direction

The Natural Disturbance Pattern Emulation Guide (NDPEG) directs that a maximum of 20% of planned clearcuts can exceed 260 ha in size. This direction is difficult to harmonize with other forest management guidelines (e.g. marten) because it discourages small cuts that fragment the landscape. The requirement to meet these spatial requirements for planned clearcuts while allocating the full Available Harvest Area, (AHA) was difficult without allocating younger than normal stands (age class substitution) for harvesting.

The current modeling requirement to defer marten core areas from harvest for a 60-year period in the Sustainable Forest Management Model (SFMM) required the planning team to vary the amount of area removed from the available harvest area for marten habitat to reflect trends in volume supply over time.

The issues of age class substitution and marten core habitat supply are discussed in Section 3.3.7.

Resource Tourist Operator(s)

The Martel Forest supports a significant resource-based tourism industry. As with other forest management units in Ontario, managing the resource-based tourism / forestry interface has been a challenge. Forestry operations were planned in the vicinity of a number of tourism establishments or tourism values in the 2006 FMP. All the resource based tourism (RBT) operators were provided with an opportunity to become involved in

the Resource Stewardship Agreement (RSA) process intended to formalize the establishment of acceptable conditions for forestry operations in areas used by both industries. However, no RSAs were signed. This is discussed in Section 3.3.2.

Cottager Opposition to the Highbrush Lake Road

Cottagers opposed the development of the Highbrush Lake Road which was planned as a primary haul route. Concerns included possible vandalism because of year-round access, noise pollution, potential damage to a pickerel spawning site (at the proposed water crossing location) and boat access restrictions to neighboring lakes. In response to these concerns the access proposal was withdrawn from the 2006 FMP, but was retained in the 20 year road plan.

Habitat Supply Modelling

Following the Second Information Centre a request for issue resolution was received concerning approaches to wildlife habitat planning used in the development of the forest management plan. The issue resolution process described in the 2004 FMPM was initiated to address the concern. This issue is discussed in Section 3.2.2.

Age Class Substitution

In forest management planning a number of steps are taken to identify forest stands that are both eligible and suitable for harvest. In order for the Selected Management Alternative (SMA) to be successfully implemented, areas selected for harvest, renewal and tending operations in any five-year plan term must be identified as eligible for operations in the twenty-year forest management plan.

Past harvesting, forest management activities (e.g. planting, tending) and natural depletions resulted in geographically close forest stands having diverse age class structures. Achieving the desired age class structure within forecast harvest allocations therefore proved challenging. In order to meet NDPEG requirements and allocate harvest areas that met operational and planning requirements, age class substitutions (harvesting in younger stands) in most forest units was required.

The Draft Forest Management Plan presented a degree of age class substitution that was not supported by the OMNR. Tembec re-allocated stands and re-submitted the operational component of the Draft Plan. This issue is discussed in Section 3.3.7.

3.0. SUMMARY OF AUDIT FINDINGS

3.1. Commitment

The IFAPP requires that Tembec and OMNR develop policy statements which include the organization's vision, mission, guiding principles, and codes of management practice. The corporate mission and vision documents and statements must be readily available to staff and reflected in daily operations.

The 2007 IFAPP allows the auditor to utilize evidence from other recent forest certification audits such as the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI) and the Canadian Standards Association Sustainable Forest Management program (CSA-SFM) where the evidence collected is current and sufficient to satisfy the requirements of the IFAPP.

Tembec has FSC certification.[13] When a certification audit has met IFAPP requirements the IFAP Commitment principle and the Human Resources criteria of the System Support principle (Section 3.5.1) are considered to have been met. In our opinion, the FSC certification met IFAPP requirements and therefore Tembec has met the requirements of the IFAPP Commitment principle.

The FSC certification does not apply to OMNR and we therefore audited OMNR for compliance with the IFAPP commitment principle. Corporate OMNR has produced a number of strategic directions to deliver on its goals, strategies, and actions. The most recent document is Our Sustainable Future (February, 2005) which contains a long term corporate vision of a "*Healthy environment through sustainable development*" and a mission of "*ecological sustainability.*" It describes an operating philosophy and contains specific goals including a specific strategy for *"improved aboriginal relations through economic development opportunities and partnerships"*.

As required, a Local Citizens Committee (LCC) was properly constituted and participated in the planning and implementation of forest management on the Forest (Section 3.2.1.) and both the OMNR and Tembec displayed an ongoing commitment to establishing positive working relationships with First Nations (Section 3.2.3.).

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[13] The field portion of the FSC assessment occurred in December of 2004 when the Superior Forest was still in existence. The Forest received SW-FM/COC-1749 certification on January 20th, 2006 when it was actually called the Superior – Martel Forest (there was a 13 month lapse between assessment and certification). A FSC Annual audit was completed in January, 2007 that recommended the Forest remain certified.

While we conclude that Tembec and the OMNR Chapleau District had met all requirements to develop corporate policy and directions related to sustainable forest management, we are concerned that OMNR's commitments to forest management are being undermined by recurring staffing and funding shortages (Section 3.5.1.).

3.2. Public Participation

3.2.1. Local Citizens Committee

A Local Citizens Committee (LCC) must be established to help the planning team prepare the Forest Management Plan. Membership on the committee is to include local citizens representing a range and balance of community interests. LCC responsibilities include ensuring the effectiveness of public consultation, assisting with the identification and analysis of management alternatives, participating in the development of values maps, monitoring the implementation of the plan, and providing advice to the District Manager (DM) on plan amendments and issue resolution. Each Forest Management Plan must contain an LCC general statement of agreement or disagreement with the plan.

Membership on the LCC represented a range of community interests (e.g. mill workers, road based tourism, trappers, general public) but there were notable exceptions in representation of remote tourism interests and First Nations. OMNR had made numerous recruitment efforts to broaden community representation on the LCC (newspaper advertisements, a LCC recruitment information centre) with limited success. Over the audit period membership ranged from five members in 2003 to nine in 2006.

Recruitment efforts to engage a First Nation representative were unsuccessful. We were informed that aboriginal recruitment efforts were hampered by a perception that FN involvement in the LCC was perceived as "*...reducing First Nations to the status of just another stakeholder*", and this was unacceptable. In response to this circumstance the Chapleau District developed a First Nations Task Team (FNTT) with a mandate to provide First Nation input for the development of the 2006 Pineland and 2006 Martel Forest FMPs. This initiative proved to be very successful and we were informed by several First Nation contacts that involvement in the FNTT was preferable to the LCC in that it focused exclusively on First Nation issues. We note that the LCC was supportive of the FNTT and discussed the possibility of an LCC member attending a FNTT meeting and/or an exchange of minutes between the two groups. We discuss the FNTT in more detail in Section 3.2.3.

We examined the role of the LCC in the development of the 2006 FMP and the implementation of forest management during the audit period. We found that the LCC Terms of Reference (TOR) were generally adhered to, and the LCC was engaged in the management of the Forest. For example, the LCC reviewed and commented on the list of required alterations to the draft Forest Management Plan, actively participated in developing public consultation recommendations, was represented at the Information Centers, participated in the identification and analysis of the management alternatives

and a LCC member was on the planning team. The LCC also provided input on applicable recommendations from the 2002 IFA. The LCC statement on the contributor's page of the 2006 FMP indicated it "*...had been involved with the development and preparation of the Forest Management Plan, and agrees with the contents of the plan.*"

The LCC members indicated Weyerhaeuser, Tembec and OMNR staff were responsive to member's questions, concerns and requests for information. Our assessment is that the LCC productivity and positive attitude was enhanced by the assistance and respect accorded to them by OMNR and the SFL holder(s). LCC members also indicated to the audit team that they felt they were effective and "*made a difference*". OMNR and Tembec staff agreed with this assessment.

Our review of minutes and interviews with LCC, OMNR and Tembec indicated that the Committee operated on a consensual basis. During 2004, LCC performance was hampered by internal interpersonal problems which required an intervention by the OMNR District Manager to get the committee "*back on track*". Following the intervention, the LCC once again functioned effectively. We also note that in 2005, leading up to the amalgamation of the Superior and J.E. Martel Forests, that the OMNR provided the opportunity for Pineland-Martel LCC members to join the Superior LCC. This was a proactive and practical move that helped to keep both LCC's functional and ease the transition between Forests.

During the audit, we interviewed LCC members and attended a regular LCC meeting. We were repeatedly informed of the LCC dissatisfaction with the IEA process. Members cited the following concerns:

- They felt the IEA process granted inordinate power to an individual without assigning any related responsibility or accountability for the results. They felt that one IEA request had resulted in severe community hardship and costs to the company. They felt costs incurred as a result of IEA deferrals should be reimbursed by the IEA proponent(s) or government.
- They felt it was unacceptable that an IEA proponent could "*effectively veto*" the work of the LCC with a last minute IEA request, without having participated in the broader community based forest management process (e.g. planning, consultation, consensus building, issue resolution).
- Members were upset with the failure of the Ministry of the Environment (MOE) to adhere to its own timelines in dealing with the IEA request.
- They felt that provincial scale concerns such as herbicide use in forestry were being inappropriately debated at the management unit level at the expense of local communities.

We discuss our audit findings related to the issue resolution and IEA processes in Section 3.2.2.

We conclude that the LCC had a core of experienced and dedicated members who did an excellent job of effectively achieving FMPM purposes under challenging circumstances which included changes in the SFL holder, the amalgamation of the Superior and J.E. Martel Forests and regular changes in OMNR representatives.

3.2.2. FMP Standard Consultation Process

The FMPM requires that public consultation opportunities be provided during the forest management planning process. These opportunities are to include an invitation to participate in the planning process, two public information centres, review of the draft plan, and inspection of the approved plan. The public must be given opportunities to access the OMNR issue resolution process and to request a Ministry of Environment (MOE) "Individual Environmental Assessment" (IEA) of a specific proposed forest management activity.

Public consultation for the development of the 2006 Superior Martel FMP complied with FMPM requirements. Public notices were issued with sufficient lead time, their contents were complete and a mix of communications media (e.g. newspaper advertisements and direct mailings) was utilized. Material presented at the information centres met prescribed standards, a list of required alterations was available during the public review of the Draft Plan and Environmental Registry notices were issued as required. We note that a supplemental information centre was held as a result of the amalgamation of the J.E. Martel portion of the Pineland-Martel Forest with the Superior Forest.

As required by the FMPM, notice was provided for the public to access the issue resolution process and/or Individual Environmental Assessment (IEA) process.

One issue resolution request was made at the draft plan review stage. The issue resolution timing and procedural requirements of the 2004 FMPM were met.

<u>IEA requests</u>

Two IEA requests were made:

(a) One IEA request was in relation to the provision/protection of bay breasted warbler habitat. Specifically there was concern with respect to:

- Potential negative impacts of forest management on warbler habitat.
- OMNR's modeling approach to predicting warbler habitat supply.
- An allegation that 2002 IFA recommendations related to wildlife habitat were being ignored.

(b) The other IEA request was related to concerns about:

- Herbicide use.
- Forestry operations in the vicinity of remote tourism lakes.

- An allegation there was a lack of socioeconomic information in the FMP.
- An allegation that harvesting methods did not consider the local unemployment rate.
- Lack of tourism representation on the LCC.
- An allegation there was a lack of access to forest management planning material.

In both cases, the Minister of the Environment decided that an IEA was not required, ruling that:

for (a) OMNR had:

- Followed the requirements of the FMPM and that the relevant recommendations of the 2002 IFA were being addressed in the 2006 Superior-Martel FMP.

and for (b) OMNR had:

- Met the requirements of the FMPM.
- Provided a justifiable rational for continued herbicide use.
- Protected tourism lake values.
- Followed appropriate procedures for socio-economic evaluation.
- Taken appropriate measures to try to increase LCC representation.
- Provided adequate opportunities for public review of planning material.

Outlined below are our observations regarding the requests:

1. All procedural requirements for requesting an IEA were followed by the applicants, MOE and the OMNR.
2. One IEA requestor did not utilize the issue resolution process and submitted the request at the very end of the allowable time period.
3. OMNR and MOE took approximately one year to process the IEA requests.
4. Two requests were made by the OMNR for MOE "concurrence" to allow for some forest management activities to proceed pending a decision on the IEA requests. "Concurrence" in both cases was granted with conditions negotiated by OMNR with the IEA requestors. "Concurrence" approval conditions for the first request directed that harvesting in the preferred habitat of the bay-breasted warbler be limited to 5,700 hectares in any given year. Conditions for "concurrence" approval for the second IEA request resulted in chemical tending being prohibited on 323,000 hectares (1/3 of the Forest). Additionally, harvest and site preparation were restricted on 165,000 of the 323,000 hectares. The OMNR and Plan Author both indicated that the IEA requests had large economic implications for the people and communities that rely on the Forest. The Plan Author

estimated that the full financial impact of the IEA requests was hundreds of thousands of dollars.

5. One of the IEA requests fundamentally questioned the use of herbicides for forest management purposes and the other was focused on the broad issue of protection of bird habitat in forest management planning. Both of these are provincial issues that receive direction from corporate OMNR. From our perspective, both requests appeared to be an effort to highlight these provincial level issues through the local forest management planning process.

While all IEA procedural requirements were met, and we recognize an individual's right to request an IEA regardless of the level of participation in the planning process we are concerned that:

- The IEA requests process resulted in significant negative social and economic impacts.
- Some of the issues may have been avoided if the steps in the planning process designed to develop compromise agreements had been fully utilized.
- The "last minute" nature of one of the requests negated much of the communication and consensus development work by the LCC, OMNR and Tembec that had occurred throughout the planning process.
- Local communities bore the brunt of economic and social hardship from IEA requests when the issues were/are clearly provincial in scope.

We are aware that in 2006, the Minister of the Environment initiated changes to the environmental assessment program in response to concerns raised about the length of time to complete the process. One of the changes was to speed up the process by permitting the Director of the Environmental Assessment and Approvals Branch (EAAB) to make decisions on IEA requests. In addition, there were a number of administrative changes to provide clarity, remove redundancies, consolidate requirements, ensure consistency, etc.

While we applaud measures to improve the efficiency of the EA process, these changes do not substantially address the concerns we have raised.

We provide the following recommendations to address our concerns.

Recommendation # 1:

Corporate OMNR should encourage the Ministry of the Environment to explore mechanisms that require participation in the FMP planning process as a pre-requisite to entry into the Individual Environmental Assessment process.

Recommendation # 2:

Corporate OMNR should encourage the Ministry of the Environment to explore mechanisms that would consider Individual Environmental Assessment requests be dealt with at a scale appropriate to the concern (i.e. local vs. provincial).

3.2.3 Native Peoples' Consultation

The FMPM requires that native communities be provided with the option to choose an additional consultation and documentation opportunity with respect to forest management planning, referred to as the Forest Management Native Consultation Program (FMNCP). In addition, OMNR District Managers are required to conduct negotiations with native communities to identify and implement ways of achieving more equal participation by Aboriginal peoples in receiving benefits from forest management.

Aboriginal communities around the Chapleau area and with specific interests in Martel Forest include;

- Brunswick House First Nation
- Chapleau Cree First Nation
- Chapleau Ojibwe First Nation
- Michipicoten First Nation
- The Missanabie Cree First Nation (currently without a reserve)

With the exception of the Chapleau Ojibwe, all of the listed First Nations (FN) participated in the development of the 2006 FMP.

As required by the FMPM the FNs were invited to participate in the preparation of a Native Background Information Report and offered the option to participate in the standard public consultation process or the Forest Management Native Consultation Program (FMNCP). Members of each First Nation were also offered a seat on the forest management planning team. Initially the Brunswick House, Chapleau Cree, and the Michipicoten First Nations identified representatives to participate on the planning team. As the 2006 forest management planning process evolved, concerns were identified with respect to the level of participation of First Nation representatives (e.g. not proactively participating during meetings) and discussions were initiated with First Nation representatives to investigate alternatives. These discussions culminated in the development of a First Nation Task Team (FNTT) which was to provide input to the planning process for both the Superior-Martel and Pineland Forests. The FNTT was funded by the planning process and operated parallel to the planning team. The Chapleau Ojibwe did not have a representative on the FNTT due to capacity issues. It

was agreed that OMNR staff would ensure that community's input would be brought to the Task Team table and included in reports.

Each FNTT representative[14] brought their community perspectives related to forest management planning to the table. At the onset the FNTT identified the following as priority work areas:

- The identification of FMP objectives from their perspective.
- The identification of values important to them.
- The development of values prescriptions.

The FNTT met on twelve occasions during the two year development period for the forest management plans and the team also received funding for an additional eight meetings to deal with broader land use issues. Two individuals were designated to represent the FNTT at the FMP planning team meetings. FNTT members were involved in the development or updating of their respective communities' Native Background Information Report. To a lesser degree they provided input into the Report on the Protection of Identified Native Values. The development of the values involved community members as well as OMNR and Tembec staff. The Background and Values information was merged into two reports with separate sections for each of the communities.

Our interviews revealed that the process was both pragmatic and results focused and helped the members to merge their cultural approach towards planning into the FMP process. The FNTT was a proactive and innovative approach that resulted in significant gains with respect to cross-cultural communications between all parties engaged in the planning process. We believe the initiative worked as well as it did because;

- The OMNR had several employees who had been on the Forest for some time and were known by First Nation leaders and community members (one was an aboriginal).
- Tembec staff were known to the First Nations and had a history of relatively positive working relationships.
- The Plan Author and planning team were receptive to FNTT ideas and input.
- Tembec paid a FNTT representative to function as a team leader and facilitator during a period when the OMNR Resource Liaison Officer position was not funded.
- Funding was provided to cover travel and other expenses.

[14] The Mattagami First Nation, with a primary interest on the adjacent Pineland Forest was also represented on the FNTT.

- First Nation representatives had a degree of comfort and familiarity with other aboriginal team members that encouraged dialogue and expression of ideas.
- The cooperative ventures with respect to Background information and Values Reports (assisted by OMNR and Tembec) increased the individual community's capacity and effectiveness.

While the FNTT concept which brings differing cultural backgrounds and perspectives together to work on common issues is not new, we believe that the Chapleau District process was very well done. As such, we have identified the implementation and management of the FNTT as a best management practice.

Best Management Practice

The Chapleau District's First Nation Task Team is a proactive and innovative approach to cross cultural communications in forest management planning. The FNTT was a positive influence in bringing forward aboriginal perspectives in the development of the 2006 FMP.

The Chapleau OMNR was also successful meeting Class Environmental Assessment Condition 77 and Condition 34 obligations which require it to identify and implement ways of achieving more equal participation by Aboriginal peoples in forest management. The Chapleau OMNR, Weyerhaeuser and Tembec had all been proactive in approaching and engaging local First Nations in a variety of ways. These included negotiated agreements to enhance communication and education, the provision of employment and business opportunities and assistance with the documentation of First Nation values information. Appendix F provides a list of the activities undertaken and/or completed over the audit term.

There is clear evidence that;

- First Nations are actively engaged in resource management planning in the Chapleau District. The FNTT was a positive influence in bringing forward aboriginal perspectives in planning.
- Chapleau OMNR, Tembec and aboriginal leaders, through trial and error, are finding ways to work cooperatively.
- First Nations are gaining the experience to operate successful forestry businesses as the capacity, knowledge and political will within each community increases.
- The continued successful operation of the Chapleau sawmill has resulted in numerous direct and indirect employment opportunities for aboriginal people.

It is our assessment that;

- Terms and Condition 77 and 34 were met and that OMNR, Weyerhaeuser and Tembec have directly and indirectly been utilizing available opportunities to enhance First Nation benefits from forest management.
- Tembec demonstrated a serious commitment towards involving FNs in its operations.
- All FMPM requirements for the notification and involvement of FNs in the forest management planning process were met.

3.2.4. Annual Work Schedule Public Inspection

The FMP Annual Work Schedule (AWS) is produced every year to guide the implementation of operations. It lists operations which are approved in the FMP and are scheduled for implementation for that year. The LCC and the public must be given an opportunity to review the AWS.

All AWS's were reviewed by OMNR district staff and by the LCC. All 1996 FMPM and 2004 FMPM content and timing requirements for public Notices of Inspection of the approved AWS, aerial herbicide applications and prescribed burns were met. Mining Companies were notified of the planned AWS activities.

3.3. Forest Management Planning

3.3.1. Planning Team Activities

The FMPM requires that the District Manager appoint the chair of the planning team. The team is to be chaired by the Plan Author who must be a Registered Professional Forester (R.P.F.). The team must represent a wide range of natural resource expertise. A Terms of Reference must be developed by the Plan Author and approved by the OMNR District Manager and the Regional Director. It must identify the tasks required for the preparation of the plan and identify the responsibilities of planning team members. A detailed timeline for plan preparation must be established and planning team members must be available to answer questions from the public.

The Superior-Martel FMP planning team represented a wide range of natural resource expertise and was supported by advisors from Tembec, OMNR and other Ontario government ministries. The plan author/chair was a R.P.F. A comprehensive Terms of Reference was approved by the District Manager and the Regional Director.

A review of the planning team minutes, task team reports and interviews with team members indicated that there was good attendance and the team operated effectively. There were frequent meetings (23 in the first 21 months of planning). Planning efficiency was enhanced with the creation of "task teams" (e.g. SFMM, First Nations).

The addition of the J.E. Martel portion of the Pineland-Martel Forest to the Superior Forest in January 2005 occurred after the First Information Centre. This resulted in the planning team having to update the planning landbase and related modeling calculations. A revised schedule was developed and the planning team appropriately decided to hold a supplemental Information Centre (April, 2005) to allow public comment on the revisions to accommodate the addition of the J.E. Martel portion. Four additional First Nation Supplemental Information Centres were also conducted. We note that some timing and communications issues did occur due to the compressed timeline and discuss these in Section 3.3.8.

The FMP was approved by the Regional Director (RD) in March 2006.

OMNR delivered the required information and support to the planning team. New values information was available for plan initiation but the maintenance of values information throughout plan implementation was minimal. We discuss this issue in Section 3.4.1.

We sampled 40% of the correspondence summary file to determine if public inquiries were responded to in a timely manner as this was an issue noted in the previous audit. In some instances response times remained somewhat slow (44% of the responses took more than two weeks and 25% took more than 1 month). While some of the delayed responses were due to the complexity of the issue we believe that improvements in response time can still be made. However, we concluded that sufficient effort is being made to address the issue and a recommendation is not required.

3.3.2. Resource Stewardship Agreements

Every FMP must include a statement confirming a commitment to maintain the viability of the tourism industry and to establish a level of remoteness as recognized in the Tourism and Forestry Industry Memorandum of Understanding (MOU). Every reasonable effort must be made to pursue the development of Resource Stewardship Agreements (RSA). RSA provisions that directly affect the FMP must be incorporated into it.

The FMP objectives and related strategies confirm a commitment to maintain the viability of the tourism industry and OMNR provided updated tourism values mapping.

During the 2006 FMP planning process, twenty-nine businesses were approached to ascertain their interest in developing RSAs. Although six initially indicated an interest in pursuing agreements none were finalized. Although no agreements were achieved, the discussions with tourism operators did result in better identification and protection of their values in the 2006 FMP.

Our discussions with Tembec and the OMNR indicated that the RSA process is poorly timed (in that operators only became interested when planned operations became apparent), and that they preferred informal rather than formal (RSA) arrangements.

We offer the following suggestion;

Suggestion # 1:

Corporate OMNR should investigate the need for and feasibility of a more streamlined approach to the RSA process including a modification of the timing for tourism consultations.

3.3.3. Source of Direction

The planning Team and the LCC were provided with all relevant policy, guidelines and strategic direction needed to carry out their planning responsibilities. Through our interviews with planning team and LCC members and a review of related minutes it was clear that their planning deliberations were undertaken with a good understanding of government legislation and policy direction. Related documents were listed in the Terms of Reference, and analyses, updates and interpretation notes were contained in the FMP appendices.

3.3.4. Introduction

The plan introduction contained a properly prepared and signed statement of how OMNR's Statement of Environmental Values (SEV) under the Environmental Bill of Rights was considered. As required, an index to the environmental assessment components of the plan was included.

3.3.5. Management Unit Description

The description of the Forest in the FMP met FMPM requirements and provided the necessary context for forest management planning and decision making. Information was provided on the administration, geology, current and historical forest condition management unit history and the other forest resources. A description of locally featured species and rare, vulnerable, threatened and endangered species was provided. As required, there was a description of the socio-economic aspects of the Northeast Region and the Chapleau District and tables in the text adhered to required formats.

The FMP was prepared utilizing a 1995 Forest Resource Inventory (FRI) based on 1992 aerial photography which had been updated for forest depletions (actual and forecast) and accruals (i.e. free-to-grow) to March 31st, 2003. The FRI met FMPM requirements.

3.3.6. Objectives and Strategies/Management Alternatives[15]

The FMP must establish direction for managing the forest to achieve forest sustainability which is defined as "*long term forest health*". Legislation and policy, resource management issues, the current state of the forest and the desired future forest condition all influence the strategic direction of the FMP. These factors are to be considered by the planning team and the LCC in the development of objectives.

A range of management alternatives is to be developed by the planning team with the assistance of the LCC. Management alternatives are compared to determine how well they achieve forest sustainability and how well they provide benefits from the forest (e.g. employment, wood fibre).

Objectives, Targets and Strategies:

The CFSA requires that objectives in every forest management plan must address four specific categories.

a) Forest diversity.

b) Social and economic matters, including timber harvest levels.

c) The provision of forest cover for those values which are dependent on forest cover.

d) Silviculture.

Many FMP authors choose to structure the plan objectives according to these four categories. However, in the 2006 Superior-Martel FMP, the planning team chose to use six sustainability criteria endorsed by the Canadian Council of Forest Ministers' (CCFM)[16], (and added a seventh) as a method of organizing its objectives.

- Criterion I: Conservation of Biological Diversity
- Criterion II: Maintenance and Enhancement of Forest Ecosystem Condition and Productivity
- Criterion III: Conservation of Soil and Water Resources
- Criterion IV: Forest Ecosystems Contributions to Global Ecological Cycles
- Criterion V: Multiple Benefits to Society
- Criterion VI: Accepting Society's Responsibility for Sustainable Development

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[15] A management alternative is a combination of objectives and associated strategies required to achieve those objectives.

[16] "Defining Sustainable Forest Management, A Canadian Approach to Criteria and Indicators".

- Criterion VII: Maintaining And Enhancing Frameworks For Sustainable Forest Management

Their rationale for organizing plan objectives in this manner was as follows:

"In keeping with the development and endorsement of the six criteria and indicators of sustainability, presented by the Canadian Council of Forest Ministers, this section is structured so that the required objectives and strategies fall under one of the six defined criteria. It was felt that this structure clarifies Tembec Industries Inc.'s commitment towards forest sustainability and will assist in the subsequent assessment of success. Further it will provide clearer connection to the State of the Forest Report published by the Ministry of Natural Resources every five years. The four objectives under the CFSA are covered within this framework and are indicated in brackets beside the related criterion."

We find that this is a reasonable rationale and note that it is not an FMPM requirement to organize objectives according to the CFSA categories of objectives. However, we feel that it is important to maintain some consistency of how objectives are organized between plans to help comparisons of the objectives and their achievement among successive plans. For example, the 2001 Superior Forest FMP used the CFSA categories of objectives while the 2006 FMP used the CCFM criteria to organize plan objectives. This situation makes comparisons of objective achievement between plans difficult. This issue is part of a larger concern we have identified related to the forest manager's ability to assess longer term forest sustainability when forest management guidelines, forest boundaries and forest units keep changing. This issue is discussed in Section 3.7.

The 2002 IFA made the following observation with respect to the 2001 Superior Forest FMP objectives: [17]

> *"There is no discernable pattern to the organization of objectives and strategies in this (2001) plan. The forest diversity objective has a number of targets associated with it, the social and economic objective has harvest targets and a series of what could be called sub-objectives, the forest cover dependent values objective contains targets and the silvicultural objective has associated targets and a sub-objective. This lack of organization makes following each objective's sub-components somewhat difficult."*

We found the 24 objectives and associated targets and strategies of the 2006 Superior-Martel FMP to be complete and comprehensive.

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[17] *The objectives of the 2001 Superior Forest FMP and the 2006 Superior-Martel FMP are summarized respectively in Section 3.7 and Appendix G of this Audit report.*

Management Alternatives:

The planning team met FMPM requirements for the development of management alternatives. Four management alternatives (including the three mandatory alternatives required by the FMPM) were developed and analyzed.

TABLE 3. FOREST MANAGEMENT ALTERNATIVES

Management Alternative	Alternative Purpose
1	Assess the timber production potential of the forest based on available revenues for silvicultural funding (a mandatory alternative).
2	Assess the timber production potential based on the assumption that all required silviculture funding is available (a mandatory alternative).
3	Provide for the anticipated industrial demand for timber assuming that all required silvicultural funding is available (a mandatory alternative).
4	Maximize timber production based on available revenues for silvicultural funding, and with harvest flow constraints (a maximum decrease of 10% was allowed to occur between volumes of all the major species groups to ensure that volume achievement would not be severely affected by large drops between terms).

In addition to the four management alternatives, a "natural run" of how the forest might develop over time in the absence of human intervention was also analyzed. The natural run served as the benchmark to compare to the Selected Management Alternative (SMA) and to develop some of the base level constraints to be applied to all management alternatives. Inputs and assumptions used to develop modeling inputs for forest dynamics and silvicultural options were reasonable and based on the best available information. Base assumptions and constraints, common to all management alternatives, were detailed in the FMP text and supplementary documentation.

Evaluation of the Management Alternatives

All alternatives underwent an initial test of sustainability against four non-spatial sustainability criteria as required by the FMPM (forest diversity indices, managed Crown forest area available for timber production, available harvest area and habitat for selected wildlife species). Also, as required, the SMA was assessed spatially (landscape pattern indices).

The management alternative analysis and scoring assessed how well each management alternative achieved each FMP objective. All alternatives were assessed to determine:

- The future forest condition that is expected to result from the implementation of the alternative.
- The implications of the management alternative on forest sustainability.
- The Forest's ability to produce the desired benefits over time (objective and target level achievements) under the alternative.
- The socio-economic implications of implementing the alternative.

The analysis of management alternatives met the requirements of the FMPM and was clearly portrayed in the FMP. We note that changes in silvicultural intensities resulted in significant differences in the volumes predicted. In our opinion yields derived for intensive (site preparation, planting and tending) and elite (use of improved growing stock) yield curves were unreasonable (i.e. Pj1 basic yielded 210 m^3/ha whereas PJ1 elite yielded 342 m^3/ha). We do not provide a recommendation or suggestion related to this concern, as we note that since the drafting of the FMP, Regional OMNR, Chapleau District and Tembec staff have reviewed the data and newer versions of the elite and intensive management yield curves are more reasonable. Additionally, tests completed for this audit show that the SMA (utilizing the new curves) still ranks highest in meeting management objectives.

The Superior-Martel Forest planning team employed the Socio-Economic Impact Model (SEIM) (version 7.01 April 2000) to conduct the required analysis of the management alternatives. Findings are documented in "Socio-Economic Impact Model: Model Inputs, Outputs and Rankings" attached in the supplementary documentation. It is our assessment that the application of SEIM in support of the social economic impact requirements for the FMP was well done and well documented.

The Selected Management Alternative

Alternative 4 was chosen by the planning team as the SMA because it:

- Passed the non-spatial tests of sustainability.
- Passed the spatial test of sustainability.
- Provided the best mix of volumes for both conifer and poplar during the short-term and mid-term.
- Had the best socio-economic results between terms.
- Provided the best preferred wildlife habitat in both area, and trends as compared to the natural benchmark run.

- Had similar forest composition structure, as compared to the current forest condition.
- Had reasonable silvicultural expenditure when compared to the other alternatives.

We concur with the planning team's rationale for the selection of the SMA. However, while the evaluation of management alternatives was thorough, they provided limited insight for comparison because there was very little difference in achievement levels between alternatives. Objectives were not weighted with all of them having equal importance. The only significant difference between alternatives occurred in the Social and Economic and Silviculture objective groups where the SMA reduced fluctuations in harvest volume and harvest revenues. Since analysis of management alternatives (and the associated scoring system) will not be required for the next FMP we do not provide a recommendation.

We were also initially concerned with the decline in the area of managed Crown forest available for timber production in the long term. The current level is 757,905 ha which under the SMA declines to 707,273 ha in 2106. The decline is principally due to NDPEG reserves and is justifiable assuming that silvicultural expenditures should be limited to revenues.

3.3.7. Operational Planning

Operational planning selects areas for harvest, tending, and renewal operations for the five-year term of the forest management plan. Preferred silvicultural treatment packages and the silvicultural ground rules are identified and prescriptions to protect specific values are developed through Area of Concern (AOC) planning. Locations of new primary and secondary road corridors are determined.

Interviews with OMNR and Tembec staff indicated that adequate information was available for planning AOC requirements and that alternate methods of operation were considered to support the protection of AOCs when required. Our review of reports, supplemental aerial photography and field observations indicate that values within AOCs were adequately protected. We note that an exception to the specific direction of the management guideline for Osprey was developed in anticipation of Osprey Guide revisions during the audit period. As required, a monitoring program was developed and implemented based on directions contained in the "Monitoring Protocol for Clearcut Harvesting around Osprey Nest Sites in the Boreal East, Outside the Timing Restriction Period". A more detailed discussion on the management of AOCs is provided in Section 3.4.1.

The Silvicultural Ground Rules (SGRs) were developed according to appropriate guidelines. The Silvicultural Treatment Packages (STPs)[18] were appropriate for forest types and included the silvicultural system, the harvest method, renewal, tending treatment and regeneration standards and targets. Forecasted renewal activities were consistent with those projected from SFMM, and supported the achievement of FMP objectives.

Areas selected for forest management activities were consistent with the selection criteria described in the FMP. The areas selected for operations were consistent with the eligibility requirements and the level of available harvest area. The total forecast harvest area and the harvest distribution across forest units closely matched the Available Harvest Area (AHA) (the planned harvest area was 743 ha less than the AHA determined in SFMM). This shortfall was the result of required changes to SFMM model inputs (including poplar volume targets and post-renewal succession). Some differences within forest units between available and forecast harvest area by age class existed principally in the PJ2 (jack pine) and LC1 (lowland conifer) forest units due to;

- The manipulation of allocations to mitigate public concerns.
- The consolidation of blocks to emulate the natural disturbance template for the site region.
- The consolidation of harvest areas into operational blocks.

The OMNR reviewed the allocations and determined that they were within the acceptable range of natural variation for the impacted forest units.

The forecasted levels of harvest (both area and volume) and renewal were sufficient to provide for the achievement of the plan objectives. The FMPM requirement to provide a contingency harvest area was met.

The provision of habitat for selected wildlife species (particularly marten) and the implementation of the requirements of NDPEG presented significant challenges to the planning team. With respect to the provision of marten habitat, strategies were developed to shift core marten habitat areas over time in an effort to reduce the overall impact on wood supply while still maintaining quality core habitat. Additionally, a more refined approach (compared to the 2001 FMP) was adopted to define suitable marten habitat. These strategies varied the amount of area removed from the available harvest area for marten habitat to reflect trends in volume supply over time.

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[18] Silvicultural Ground Rules (SGRs) specify the silvicultural systems and types of harvest, renewal and tending treatments that are available to manage forest cover and the type of forest that is expected to develop over time. A silvicultural treatment package (STP) is the path of silviculture treatments from the current forest condition to the future forest condition; STPs include the silvicultural system, harvest and logging method(s), renewal treatments, tending treatments, and regeneration standards.

Planning for NDPEG requirements was complicated by the fragmented nature of the Forest arising from past natural and human disturbances. The challenge was to meet NDPEG implementation requirements and allocate harvest areas in a manner that met operational and planning considerations. Age class substitutions (harvesting in stands younger than normal harvest rotation age) in most forest units were required in order to reduce the overall impact on wood supply. Initially the level of age-class substitution in the Draft Plan was not supported by the OMNR. To address the OMNR concern Tembec significantly reduced the amount of substitution and re-submitted the plan.

Access planning was consistent with FMP objectives and met FMPM requirements. As required access controls were planned to protect tourism and other non- timber values. The public was provided with opportunities to review road plan(s) and provide comment.

We conclude that FMPM requirements for operational planning were met.

3.3.8. Plan Review, Approval

The FMPM requires that the draft FMP be submitted for OMNR and public review, and alterations required by the OMNR must also be made available to the public. The draft and final plan must be certified by the Plan Author, and the final plan must be certified by the OMNR District Manager and approved by the OMNR Regional Director.

The OMNR identified approximately 2,100 required alternations to the draft FMP. This level of required alterations is the highest we have encountered. Approximately 1,000 of the alterations were related to wildlife habitat and most were identified immediately prior to the public review of the draft plan. The fact that sixteen of the Plan Reviewers were either on the planning team or were plan advisors did not appear to have reduced the number of required alterations.

Our review of records and discussions with Tembec and OMNR staff lead us to conclude that the following factors contributed to the high number of required alterations:

- The compressed planning schedule (arising from the late addition of the J.E. Martel tract) resulted in late decisions with respect to how some wildlife values would be incorporated in the FMP.
- Some of the individual blocks and residual patches for NDPEG were initially identified by Tembec without the full involvement of the OMNR biologist.
- The AOC task team did not have time to complete its discussions on the incorporation of some of the wildlife values.
- Inadequate knowledge and outdated information related to wildlife values was exacerbated by a lack of corporate memory on the Forest (i.e. OMNR biologist

had been in the Chapleau district for only two years and had been in a permanent position for only two months during plan development).

Despite these issues and shortcomings, and to the credit of Tembec and OMNR staff, the final plan was completed and approved on time.

3.3.9. Plan Amendments

Documentation for Plan amendments and AWS revisions was complete and FMPM procedural requirements, including consultation, were met.

For the audit period there were thirteen Plan amendments (12 administrative,1 minor) to the 2001 and 2006 FMPs. Plan amendments were principally related to modifications to harvest areas, road corridor modifications and the identification of additional values.

There were ninety-three AWS revisions for the audit period. In our experience, this is an unusually large number. The AWS revisions dealt with modifications to road corridors and/or water crossings (78%), the addition of harvest blocks (13%), and modifications to silvicultural practices (8%).

The largest source of AWS revisions was modifications to planned road corridors and/or water crossings. The AWS revisions were made when alternate access was found to be better than approved road corridors and/or water crossings, or when ground conditions made planned access not feasible and/or not cost effective. The following circumstances contributed to the need for these modifications:

- The forest roads inventory was incomplete,
- Harvest blocks were numerous and scattered throughout the Forest,
- Ground reconnaissance for access was not feasible for all blocks in advance of the AWS submission.

An up-to-date inventory of all roads and crossings is planned in the 2006-2011 plan term. We are satisfied that this inventory will result in more accurate planning and a reduction of AWS revisions related to road corridors and crossings.

3.3.10. Contingency Plans

There were no contingency plans during the audit term.

3.3.11. Annual Work Schedules

Forest management activities planned in each Annual Work Schedule were consistent with those outlined in the relevant forest management plans. All AWSs reviewed conformed with the required format and specifications of the FMPM or phase-in requirements in effect at the time of AWS preparation.

Forest Operation Prescriptions were prepared for all harvest, renewal, tending, and protection activities as required. Prescriptions were consistent with the relevant FMP Silvicultural Ground Rules (SGRs).

Detail was provided relative to road corridors, road construction, maintenance schedules, road locations and criteria for crossing through AOCs. All culvert size calculations were presented in the AWS. As required by the "*Protocol for the Review of Water Crossings Proposed through the Forest Management Planning Process*" the current year crossings and the proposed crossings for the following year were presented in the 2005 - 2006 AWS.

3.4. Plan Implementation

3.4.1 Areas of Concern

An Area of Concern (AOC) is a defined geographic area, within an area selected for forest management activity which is adjacent to an identified value on the Values map. It represents an area where forest operations will be reviewed, controlled, modified, or excluded, as required to protect the value associated with the area.

All the FMP's provided detailed AOC planning information (including alternative prescriptions for protecting identified values) which was presented to the public. Based on public comment a prescription was chosen and presented in the AOC Planning Binder. These were available for public review at the draft plan review stage. We viewed the prescriptions, AWSs and FOPs in the FMPs to ensure adherence with approved provincial guidelines. Our review of prescriptions, values maps, and supplemental aerial photography, supported by field observations determined that harvesting and silvicultural activities were appropriate, and values within AOCs were protected.

Different AOC prescriptions were developed to mitigate the effects of forestry operations in the vicinity of resource-based tourism operations. All potentially affected tourism facilities were assigned an AOC prescription.

Exceptions in the 2001 and 2006 FMPs included clearcut size, commercial thinning of jack pine and harvesting around osprey AOCs. Full explanation and rationale for the exceptions were included in the Supplementary Documentation of the FMPs. We tracked the prescriptions for a sample of AOCs through the AWS and FOPs and determined they were consistent.

For the 2006 FMP, High Potential Cultural Heritage (HPCH) areas had been selected using the approved Heritage Assessment Tool. These were verified and "*netted down*" by the Chapleau District OMNR and forwarded to the Cultural Heritage Specialist in the Forest Management Branch. Tembec has yet to receive a "*netted down*" HPCH digital layer to amend the 2006 Superior-Martel FMP.

Recommendation # 3

Corporate OMNR must ensure that a suitable High Potential Cultural Heritage digital layer is available to amend the 2006 Superior-Martel FMP.

Our field site investigations indicated that AOC prescriptions were appropriately implemented in the field and were identified on maps of Areas Selected for Operations Depletion. We believe AOC planning, documentation, implementation and monitoring requirements was generally well done although some minor compliance issues are discussed Section 3.6.1.

The 2002 IFA on the Superior Forest resulted in a Recommendation that encouraged OMNR to "*...fulfill its obligations to provide accurate and timely values information for use in forest management.*" OMNR funding for non-timber values collection and maintenance is limited, and the majority of it is allocated to FMPs that are currently under development. This has been the situation in the Chapleau District. The Action Plan Status Report for the 2002 IFA reported that values information funding was received for 2003-2004 and 2004-2005; however, in 2005/06 value flights were postponed due to funding constraints. We were informed that some project specific funding was received between the production of FMPs; however, it was unpredictable and in small amounts. In our opinion, it did not fulfill OMNR obligations to maintain and update information.

The District has been utilizing many means to meet its values information obligations. The key issue associated with values protection and the development and implementation of prescriptions is the acquisition of current data and data quality. OMNR staff members were innovative and opportunistic in collecting information, but utilizing inexperienced summer students and incidental reporting by staff on other duties does not address OMNR's obligations within Ontario's current forest management regime. We believe that fulfilling OMNR's obligation requires knowledgeable staff, some level of scientific rigor in the collection of data and adequate annual funding.

OMNR has provided values funding at the start of each new plan period but has made very limited funding available between plan periods. On this Forest, this has led to values being discovered while operations were taking place, a situation which in the worst case scenario, can lead to values being missed and destroyed. This situation threatens the value and is costly to the Company if/when operations are halted or forced to relocate.

The 2002 IFA identified a number of information gaps including fish spawning and nursery areas, baitfish lakes, winter moose concentration areas, moose calving sites, significant flora and fauna communities and nesting areas for waterfowl. It is our assessment that the OMNR data base and commitment to developing and maintaining it has not shown much improvement over the intervening 5 years. There has been little or

no funding in the period between the preparation of FMPs (e.g. no aquatic values collection).

As discussed in Section 3.5.1., the long term combination of staff shortages and staff changes have affected OMNR's ability to effectively meet its obligations with respect to the collection and assessment of values data. This problem was widely acknowledged by LCC members and Tembec and OMNR staff. This is the second Independent Audit that has identified concerns with the collection and maintenance of values information. We provide the following recommendation.

Recommendation #4:

The Chapleau District should evaluate and report to Corporate OMNR on the current status of its values database and its effectiveness in meeting OMNR CFSA obligations for forest management. On the basis of the report findings and recommendations, Corporate OMNR should establish and deliver a five-year funding commitment for values collection and maintenance in the Chapleau District.

We reviewed Forest Operations Inspection Reports (FOIRs) and Compliance Plans to determine whether operations in AOCs were in compliance with approved operations. In general the compliance record on the Superior and Superior-Martel Forests was good and showed improvement throughout the audit period. However, we did note that several minor trespasses into AOCs occurred during the first four years of the audit period. Trespass sites were voluntarily rehabilitated and no warnings or penalties were levied due to the minor nature of the occurrences. Tembec has implemented measures to address the problem and improve AOC management (i.e. training, Standard Operating Procedures). No trespasses were recorded in 2006-2007. We believe that the issue is being proactively addressed and therefore do not provide a recommendation.

3.4.2. Harvest

During the audit, we inspected 31 harvest sites (4,735 hectares) from both the air and by road. The inspected blocks encompassed all seasons of operation by the three contractors (True North Timber (460,000 m^3/yr), Multech (385,000 m^3/yr) and Decicon Harvesting (30,000 m^3/yr).

Prior to 2004, Tembec retained management responsibility for all aspects of the woods operations. Operations were restructured in 2004 with the independent contractors assuming enhanced responsibility for woods operations planning, delivery and compliance inspections. Under the restructured arrangement Tembec also retains a crew with road construction and maintenance responsibilities.

Woods operations utilize either full tree harvesting (85%) or random length harvesting methods (15%). All forest units are harvested under the clearcut harvest system (e.g. conventional, CLAAG[19] or Shelterwood).

On the basis of our site inspections, we determined that harvest operations were properly implemented and reflected operator care with regard to environmental protection and the minimization of damage to residual trees. All harvest sites inspected were approved for operations in the AWS and harvest prescriptions were implemented in accordance with the Silvicultural Ground Rules (SGRs), Silvicultural Treatment Packages (STP) and Forest Operation Prescription (FOP). Harvest prescriptions were appropriate for the site conditions observed. A contingency area sufficient to support one year's operation in all forest units was identified.

Photograph 1. Appropriate application of the NDPEG tree retention targets on a harvest block.

Harvest operations did not reach planned levels during the 2001-2006 FMP term on the Superior and the J.E. Martel portion of the former Pineland-Martel Forest due to labour disruptions, mill closures, work reductions and shutdowns, poor markets, stand

[19] CLAAG – careful logging around advanced growth.

bypass[20], and delays and deferrals due to IEA requests. A report on harvest activity for the 2006-2007 operating year is not required until November 2007.

Data were not developed separately for the Pineland and J.E. Martel portions of the Pineland-Martel Forest. For the 2001-2006 Pineland-Martel FMP term, conifer depletion levels achieved 77% of the FMP forecast. Hardwood depletion achieved 86% of the FMP forecast level.

An underachievement of planned harvest area also occurred on the Superior Forest. For the 2001-2006 FMP term the planned annual harvest was 7,762 ha. The actual annual harvest area achieved was 4,999 ha (64%).

Harvesting achieved 79% of the planned harvest volume over the period, with only the volume of white birch exceeding plan forecasts (e.g. 121% in 2005-2006). The reduced harvest in SPF and poplar was a result of the reduced area actually harvested (78% of forecast). Red and white pine harvest levels were significantly below forecast levels (15% of forecast) as a result of the closure of the Pineal Lake Lumber mill.

Approximately 19% of the planned harvest area was bypassed during the implementation of the 2001 Superior FMP. This is significant. Tembec is working to reduce the amount of bypass by exploring new markets and monitoring harvest yields to compare volumes with Forest Resource Inventory forecasts and yield table assumptions. Growth and yield plots have also been established. We believe that these initiatives should, over time, reduce the number of stands bypassed for operability (i.e. low merchantable volumes) and result in efficiencies in harvest scheduling and planning. For these reasons we do not offer a recommendation with respect to the bypass issue.

The 2001 FMP forecast 1,000 hectares of commercial thinning in jack pine stands (PJ1 forest unit). No thinning occurred. The 2006 FMP allocates 991 ha (plus 520 ha within the contingency allocation) for commercial thinning based on OMNR Regional direction for commercial thinning eligibility. No commercial thinning operations were undertaken in 2006-2007 due to a lack of suitable sites identified for treatment.

Overall industry compliance in harvest operations improved significantly over the audit period as a result of operator training and changes to standard operating procedures. In 2006-2007, only one incidence of not-in-compliance was reported (Tables 6 and 7).

3.4.3. Renewal

During the field audit we inspected 22% of the artificial and 12% of the natural renewal activities that were conducted during the audit period. Levels of renewal activity were based on plan objectives and the SMA. All activities observed in the field were

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[20] Bypass is area that is not harvested because of operability, accessibility, timing restrictions and merchantability.

approved in the FMP and complied with the applicable silviculture ground rules (SGRs). Renewal activities were consistent with the Forest Operation Prescriptions (FOPs) and were appropriate to the specific site conditions. Based on our field observations and documentation review we conclude that a successful renewal program is being implemented.

Photograph 2. Successful renewal of Jack Pine Forest Unit

Renewal statistics for the J.E. Martel portion of the Pineland Martel Forest were not available for the audit term as a consequence of the joint management of the Pineland and J.E. Martel Forest during the 2001-2006 FMP term. For the Pineland Martel Forest artificial and natural regeneration achieved 79% of the planned forecast level (31,860 ha forecast vs. 25,251 ha renewed) and the area renewed was generally in balance with the area harvested during the 2001-2006 FMP term. Sixty-three percent of planned natural regeneration levels were achieved (11,338 ha renewed vs.18,111 ha planned), while artificial renewal slightly exceeded planned targets (13,914 ha renewed vs. 13,749 ha planned). Our field inspections of natural and artificial renewal sites indicated that the forest is being satisfactorily renewed.

The 2001 Superior Forest FMP target for renewal was underachieved with 54,764 ha treated vs. 82,382 ha planned. However, this level of achievement (66%) must be viewed in the context of the lower than planned levels of harvesting that actually

occurred. When viewed in the context of area harvested, the area renewed is generally in balance.[21]

In general, the reported lower levels of natural regeneration are reflective of:

- the time lag (up to three years) in reporting harvested areas that are naturally regenerated resulting in incomplete data,
- some sites designated for natural regeneration in the FMP were better suited for artificial regeneration and were treated artificially,
- lower than planned harvest levels resulting in less area to be regenerated.

All sites that were inspected for natural renewal were well stocked and growing well.

The 2002 IFA provided a recommendation that "*In the next FMP, the planning team should either present a strong justification for its approach of converting mixedwood areas to "pure species" forest units or substantially reduce the extent of planned mixedwood conversion.*" The 2006 FMP shows a decreasing trend in the overall area of mixed wood forest units over the planning term. Tembec has implemented several strategies to ensure that mixed wood units are maintained (i.e. established targets to ensure the maintenance of boreal forest types) and is providing training to staff in mixedwood silviculture practices.

To specifically address the 2002 IFA recommendation Tembec and the OMNR had a report prepared to determine the pre-settlement forest condition. While the report did not specifically discuss mixed wood forest representation it did report that species composition has shifted from conifer dominated forests to intolerant hardwood forests. It is believed that the area occupied by conifer dominated forests (spruce, pine, balsam fir) has declined from a pre-settlement level of 75% to approximately 53% while the area of intolerant hardwood species (poplar and birch) has increased by approximately 20%. The results of the report were used to determine a desired future forest condition and set objectives related to forest composition. These included the conversion of appropriate sites to conifer and the development of strategies to increase conifer stocking levels in the mixed wood management program. The specifics include;

- Promoting hardwood and conifer regeneration in strips within a stand by utilizing GPS guided aerial/ground herbicide applications.
- The testing of ground-based site preparation equipment (i.e. Nokamic Mechanical Mulcher) that will mechanically/chemically prepare strips for subsequent conifer planting.

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[21] For natural regeneration 156% of the adjusted target was achieved. This overachievement reflects a reporting shortfall in natural regeneration in the previous plan term. Artificial renewal achieved 109% of planned target.

- Investigating the delay of artificial regeneration on mixedwood sites to better stratify natural regeneration levels for future forest management interventions.
- Investigating site impacts from harvesting operations (tracking machine path/cycles, etc) that may influence future regeneration success.

During the audit we visited several sites where conifer regeneration had been established in strips and treated with herbicide to reduce in-strip competition by hardwoods. We concluded that these strategies are appropriate for the Martel Forest. If properly implemented and supported by supplemental research and adaptive management, conifer stocking levels can be expected to increase in managed mixed wood stands.

In general, most artificially renewed were satisfactorily stocked, although lower stocking levels were sometimes observed on sites were mixedwood planting strategies had been implemented due to inter-tree competition.

There were relatively few instances of non-compliance reported in renewal operations (Table 6 and 7).

Free-to-Grow Surveys (FTG)

For the 2001-2006 FMP term, Tembec surveyed 49,882 ha for free-to grow status (95% of the area forecast). Approximately 76% of the area was surveyed and declared successfully regenerated. The areas that did not meet the minimum standards typically required chemical tending, fill-planting to enhance stocking or additional time to meet minimum stocking and height requirements. We were concerned that only 28% of the area declared as successfully regenerated was renewed to the projected forest unit. This could result in long term sustainability issues. We investigated how Tembec and the OMNR had addressed this issue in the planning process. Our review indicated that in many instances, although the area did not regenerate to the projected forest unit it did regenerate to another appropriate forest unit (i.e. PJ2 in lieu of PJ1). Additionally, the 2006 FMP planning team used free-to grow data and professional judgment to revise/update succession forecasts for forest units in the FMP and link post renewal succession trends to prescribed silvicultural treatments and to the observed free-to-grow results. We concluded that the planning team approach to forest unit succession in the FMP was appropriate.

We were initially concerned with the large area (106,552 ha) that is classified as "depleted"[22] in the FMP planning inventory and questioned whether a significant backlog in free-to-grow surveys existed. Discussions with Tembec staff indicated that the "depleted area" figure included land that was forecast for depletion between 2003 and 2006. When adjusted to account for actual depletions (natural and harvest) and the

[22] The depleted land classification is comprised of harvested or naturally disturbed stands that do not have an FRI description since they have not been surveyed for their free-to-grow status.

area that achieved free-to-grow status during the audit period the "depleted" area declines to approximately 62,400 ha. On an annual basis approximately 10,000 ha of the 62,400 ha would be considered eligible for free-to-grow survey depending on the method of renewal (i.e. 5 years for stands established by artificial renewal and 5-7 years for natural renewal) and the species being considered. This annual free-to-grow survey area requirement is in balance with the forecasted annual harvest area (~9,000 ha) indicating that a significant backlog in free-to-grow survey work does not exist on the Forest.

For the 1992-1997 plan term, the Comparison and Trends Analysis of Planned vs. Actual Forest Operations reports that 28,676 ha were depleted and that 26,192 ha were surveyed for free-to-grow status. Ninety-four percent of the surveyed area was declared free-to-grow. A significant portion (73%) of the 1,505 ha declared not-satisfactorily regenerated (NSR) met stocking standards but required additional time to meet height requirements.

During the field audit we inspected 12% of the area declared free-to-grow during the audit period. All inspected sites were successfully regenerated.

Red and White Pine Renewal

The area of the white pine working group has declined[23] due to earlier harvest practices of liquidating white pine (between 1987 and 1997) and the on-going mortality of overmature trees. The 2002 IFA recommended that "*The MNR and company should develop a long-term strategy for the management of White and Red Pine on the Superior Forest for inclusion in the 2006 FMP.*" To address this recommendation, Tembec entered a partnership with OMNR to determine the pre-settlement forest composition of the Superior Forest. It then established a target of 2% of the landbase for white and red pine working groups. Restoration of pine was to be promoted through pre-harvest prescription and a seed management strategy. As required by the IFA recommendation, the 2006 FMP established specific targets for restoring red pine and white pine with regeneration efforts focused on sites that previously supported pine. The following targets were established:

- Increased representation of the Pine working group (Pw and Pr) in the Crown managed Forest by 2106 (a 100% increase from current levels).
- No decrease in total area of the Pine working group.
- Regeneration of 600 hectares of white and red pine seed tree forest unit over and above the white pine area harvested.

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[23] Since 1987 the area of white pine on the Martel Forest has declined by 30% (1,810 ha). Presently the working group occupies 4,226 ha (0.5%) of the productive forest land base.

During the audit period Tembec made progress towards achieving pine renewal targets by planting 857,372 white pine seedlings and 50,112 red pine seedlings on 596 hectares. Some collection of red pine seed occurred; however, no white pine seed was collected due to the scattered distribution of trees and the seasonal lack of cone crops. We also note that the closing of the Pineal Lake Lumber mill resulted in reduced utilization of pine. This has limited Tembec's ability to implement silvicultural prescriptions (i.e. renewal cutting) in the white pine working group.

Site Preparation

We inspected 20% percent of the area that had been site prepared during the audit term. Much of the area had been mechanically site prepared by hydraulic disk trenchers (e.g. Donaren Power Trencher) due to the competitive nature of sites. All activities observed were approved in the FMP and complied with applicable SGRs. Treatments appeared to be effective in exposing mineral soil for seeding or suitable microsites for planting. We did not observe any evidence of environmental damage associated with site preparation activities.

During the audit period the area treated by mechanical site preparation was lower than planned (69%). The underachievement of the planned target reflects the lower level of harvesting. Chemical site preparation also fell below planned targets, as scheduled sites were sprayed as a tending treatment following planting rather than before.

Tembec's slash management program is closely correlated to the intensity of its silvicultural treatment packages. On sites designated for "extensive" or "basic" treatments (1.6 km from an all-weather road) slash is only managed for fire protection purposes (i.e. where slash is adjacent to all weather roads). On areas managed for natural renewal, slash management is not typically undertaken. On sites designated for "intensive" (<50 km from a mill facility) and "elite" (< 20 km from a mill facility) slash is managed for fire protection purposes and microsite creation for artificial renewal. In practice, this amounts to between 55% and 80%% of the area harvested by full tree harvesting systems being managed for slash. Approximately 10-15% of the annual area harvested is logged by cut-to-length systems. The cut-to-length system provides some operational efficiency such as reduced road construction costs and environmental benefits such as a reduction in site nutrient losses through the retention of slash on cutovers and a reduction in the loss of productive forest land to slash piles. However, these benefits may be offset by lower regeneration success if on-site slash and debris limit the availability of "plantable" spots or impede subsequent tending operations. During the field audit, no situations were observed where the presence of slash had significantly impeded forest renewal, or resulted in significant losses of productive forest land.

As in all managed forests in Ontario, the successful implementation of a slash pile burning program is influenced by weather conditions during the scheduled treatment year and other factors such as pile conditions (i.e. amount of dirt, fine biomass etc. in the piles). For example in 2005, 93 hectares of burning occurred with some piles

consumed at the 60% level. During the field audit we observed some sites where artificial renewal had occurred prior to slash pile burning. We were informed that these burned areas may be renewed in conjunction with the delivery of other planting projects (where operationally feasible) or during subsequent treatments (i.e. refill planting). While not a widespread problem, an investment to burn the piles had been incurred to minimize the loss of productive forest land within the cutover and we believe these sites should be renewed (Photograph 3). We offer the following suggestion to address this concern.

Suggestion #2:

Tembec should ensure that areas treated by slash pile burning are promptly renewed.

Photograph 3. Burnt slash pile site with no artificial renewal. When left untreated, these sites represent a loss of productive forest land.

3.4.4. Tending and Protection

Tending treatments may be required to ensure the survival and optimal growth of desired crop species. Tending may involve cleaning (i.e. the removal of undesirable and competing vegetation) and/or pre-commercial thinning. Cleaning is accomplished by manual, mechanical and/or chemical means. Pre-commercial thinning is prescribed in overstocked stands (typically jack pine) to reduce stand density and accelerate diameter growth.

No manual or mechanical tending treatments were conducted during the audit period. The area treated by chemical tending was below planned levels (59%). When the area treated is adjusted to account for the shortfall in the area harvested 91% of the forecast was achieved. The underachievement of planned targets is reflective of the effectiveness of the initial aerial herbicide treatments in reducing competition and therefore reducing the area requiring subsequent treatment. The area treated by ground spray treatments also failed to meet plan targets (both actual and adjusted) primarily as a result of a shortage of ground spray personnel and extreme fire conditions.

We inspected 20% of the tending activities conducted during the audit period. All activities were approved in the FMPs and conducted in accordance with the SGRs and Forest Operations Prescriptions (FOPs). Our site inspections indicated that treatments were warranted and effective (Photograph 4).

Photograph 4. Effective Chemical Tending.

The Martel Forest contains many areas with rich silt and loam soils which promote the development of mixedwood forests through natural succession. After disturbances these sites tend to develop heavy competition from hardwood species. Reductions in growth, yield, stand densities and time lags in reaching free-to-grow status due to competition could have a significant impact on the long term industrial wood supply. These sites typically require extra effort and cost to establish and maintain conifer. On the basis of our site inspections, we concluded that most conifer renewal sites will require at least one tending application (release treatment) to ensure successful renewal to conifer or conifer dominated forest units. In our view, the on-going use of chemical herbicide treatments is an essential component of the strategy.

We do note that Tembec has prepared a "Tembec Regional Strategic Plan to Reduce Herbicide Usage" in conjunction with its FSC certification. Strategies to meet herbicide reduction targets included the operational use of Differential Global Positioning Systems (DGPS) equipped aircraft in spray program delivery, improved operational block layout which selectively targeted areas requiring treatment, and reductions in the levels of chemical applied during treatments.

Pre-commercial thinning (jack pine) occurred on 686 ha during the audit term. The area treated exceeded the FMP target primarily as a result of the provision of funding by the

Forestry Futures Trust. Our site inspections indicated that the treatment was warranted and appropriately implemented.

There were 10 compliance inspection reports for forest maintenance activities between 2002-2006. There were3 instances of non-compliance. In 2006-2007 no incidences of non-compliance were reported.

There were no forest protection activities for insect outbreaks conducted during the audit term.

3.4.5. Renewal Support

Renewal support activities included tree seed collection, planting stock production and tree improvement operations. During the audit period cone collection activities exceeded planned levels; however, seed collection targets for most species were not met largely as a result of a seasonal shortage of cones for some target species (i.e. white pine).

Tembec participates in tree improvement operations through its membership in the Northeast Seed Management Association (NESMA). NESMA activities during the audit period included tree improvement work, seed orchard maintenance, cone crop monitoring, cone collection and other tree improvement initiatives. Sufficient funds were maintained in the Silvicultural Trust Account to support Tembec's silviculture program.

3.4.6. Access

Road construction, water crossing installations, and road maintenance must all be conducted in accordance with the forest management plans and Annual Work Schedules.

The Martel Forest is well accessed and relatively few new primary or secondary access roads need to be constructed during the 2006-2011 plan term. During the field audit we examined 18 bridges and culverts. In general, we found that forest access requirements were well planned and that roads and water crossings were well constructed and maintained (when active). Tembec utilized the Environmental Guidelines for Access Roads and Water Crossings as a guide as well as their own Draft Water Crossing Installation Manual. Good grading practices resulted in little evidence of roadside berms or washouts. We did not observe any environmental degradation associated with water crossing installations or road construction. Table 6 and 7 provide compliance inspection results relative to forest access (Section 3.6.1.). Access compliance improved dramatically over the audit term with few instances of non-compliance being reported after 2004.

Tembec staff informed us that there is no current inventory of all the roads and crossings on the Forest, but an inventory will be completed during the current plan term.

The completion of the inventory will facilitate the development of more detailed road management strategies in the future.

In 2006 the Ontario Government established a fund to support the construction and maintenance of primary and secondary forest access roads that provide general public access. Tembec utilized this fund to maintain and improve nine existing roads (263 km). As required by the IFAPP, we confirmed that road work was undertaken as invoiced.

Access restrictions occur on a number of roads and a variety of access control methods including gates, signage and physical barriers are used. Much of the access restriction is based on the management direction in the District Fisheries Management Plan (DFMP). Its intent is to maintain viable fish populations and the remote character of specific lakes classified as Quality Fisheries Zones. It also restricts road-based access to identified tourism lakes. While the signs are generally respected by the public there are ongoing trespass problems. OMNR's enforcement efforts have been limited due to funding and other priorities, and in many instances the current measures to restrict access are ineffective.

In our experience the placing, maintenance, and enforcement of access restrictions is costly and seldom fully meets expectations. We note that many of the access restrictions are based on the DFMP which has become dated. An opportunity exists to re-evaluate the need for access control and to modify/revise current control methods in conjunction with an update/review of the DFMP. We provide a suggestion and a recommendation to address the issues of access control and enforcement.

Suggestion #3:

The Chapleau District should re-evaluate and revise (where appropriate) the access restriction requirements of the District Fisheries Management Plan.

Recommendation #5:

OMNR Regional and District staff should review the need, location and types of access restrictions required for access control, investigate the full range of enforcement options and adequately fund the selected options.

3.5. Systems Support

3.5.1. Human Resources

As described in Section 3.1, the 2007 IFAPP allows the auditor to utilize evidence from a recent forest certification audit where the evidence collected was current and sufficient to satisfy the requirements of the IFAPP. The Superior Forest received Forest Stewardship Council (FSC) certification in January 2006 and Annual audit verification in January 2007 (Section 3.1 provides details).

In our opinion Tembec's FSC certification met IFAPP requirements with respect to human resources. These requirements included;

- Appropriate and sufficient communication between managers at Tembec and their respective employees.
- Effective communications with contractors on the Forest.
- A full range of timely, adequate and effective training programs.

We found that the Chapleau OMNR had utilized a range of training methods and materials to ensure employees were fully aware of their responsibilities, and capable of carrying them out. In our opinion the training was relevant, but we determined that funding shortfalls had resulted in fewer training opportunities for new permanent and contract staff. However, training essential for FMP development and implementation was completed.

OMNR has a number of obligations to complete specific field work (e.g. values data collection) and local staff are supposed to be OMNR's "eyes and ears" on the ground. However, in our opinion the long term combination of staff shortages, staff changes and chronic funding shortages has continued to result in an inadequate OMNR field presence and a minimal response to non-timber values collection and enforcement obligations. This perspective was shared by all parties to the audit (i.e. LCC, Tembec, OMNR and First Nations).

Chronic staff changes and shortages have severely reduced OMNR effectiveness. Tables 4 and 5 provide a summary of staff turn-over (forest management related positions) in the Chapleau District over the past 5 years. Although the dates utilized in the table extend beyond the audit scope, the data illustrates the serious staffing problem afflicting the Chapleau District.

TABLE 4. NUMBERS OF INDIVIDUALS OCCUPYING POSITIONS WITH DISTRICT WIDE RESPONSIBILITIES (APRIL, 2002 – SEPTEMBER 2007) – OMNR CHAPLEAU DISTRICT

Position	Number of Individuals
District Manager	3
Planning and Information Supervisor	2
Integrated Management Biologist	2
Integrated Management Forester	2
Forestry Technical Specialist	1
Lands and waters Technical Specialist	1
Fish and Wildlife Technical Specialist	4

The Area West portion of the District has responsibilities for the Martel Forest.

TABLE 5. NUMBERS OF INDIVIDUALS OCCUPYING POSITIONS, (APRIL 2002 – SEPTEMBER 2007) OMNR CHAPLEAU DISTRICT, AREA WEST

Position	Number of Individuals
Area Supervisor	3
Biologist	3
Management Forester	3
EA Forester	1
Resource Technician	9 individuals in 3 positions

Staff turnovers amounting to three different supervisors, five biologists, five foresters and nine technicians during a five-year period cannot provide the staff presence required to obtain field knowledge and deliver on OMNR's obligations. We are aware that some of these individuals may be rotating to positions within the District; however, the experience and skills required in one position are not immediately or easily transferred to the other. Additionally, turn-over in key leadership positions such as the District Manager and Planning and Information Supervisor also contributes significantly to issues related to the lack of corporate memory and/or local knowledge on the Forest.

The staffing problems are compounded by associated delays (up to one year) in recruiting to fill vacant positions. In our view, an OMNR District with low staff turnover can work around vacant positions for some time; however, a District like Chapleau, with steady turn-over can end up carrying an unacceptably high number of vacancies (we were informed up to ten at one point).

OMNR's mandate and the SFL model of forest management obligates OMNR to perform a range of functions including a compliance and audit function, collection and

maintenance of non-timber values information and the provision of assurances to the public that their forests and resources are being managed in a sustainable manner. Local staff members are expected to have timely and relevant local field knowledge. We were told by OMNR staff that their field presence was limited by staff availability and a lack of funding to put gas in vehicles. This has been an issue for OMNR across the province and has received recent media attention in several northern communities.

While we were impressed with the dedication and work ethic of all the OMNR staff we met, the performance of the Chapleau OMNR "team" clearly suffers from staff shortages, staff turn-over and funding shortages. This has been a long standing issue and corporate/regional OMNR is well aware of it. Discussions with the LCC and Tembec and our own investigations during the conduct of the audit led us to question the District's ability to "walk the talk" and by extension, OMNR's commitment to deliver on its field obligations. We provide the following recommendation to both Corporate OMNR and the Chapleau District to address this concern.

Recommendation # 6:

Corporate and local OMNR should conduct a detailed review of Chapleau District staffing and funding issues to determine the reasons for the OMNR's on-going limited field presence on the Forest and implement corrective actions.

3.5.2. Documentation and Quality Control

The information management and maintenance systems of the SFL holder and OMNR must be complete, effective and current.

Tembec's document and record control processes met requirements. We interviewed individuals who had clearly assigned responsibilities for the collection, control, distribution and updating of documents. In response to our queries Tembec staff were able to produce the appropriate documents and files. One minor exception was that historic silvicultural records were missing for two selected audit inspection sites. We concluded that this circumstance was a result of the transfer of the SFL, and not symptomatic of a broader records management issue. We are satisfied that sufficient information existed for the sites to create/update records and address any knowledge gaps related to the areas in forest management planning.

The OMNR had adequate filing and document control and maintenance processes despite the issues identified with respect to staff vacancies and turnovers.

We conclude that IFAPP requirements for documentation and quality control were met by both Tembec and the OMNR.

3.6. Monitoring

3.6.1. General Monitoring

SFL holders are required to develop and implement a monitoring program which reports on forest management activities and evaluates the success of these activities in achieving management objectives. Specifically, the forest manager must:

- monitor the measurable indicators of forest sustainability,
- develop a monitoring program to determine the effectiveness of silvicultural treatments,
- develop and implement a compliance plan,
- prepare reports required by the FMPM (i.e. Annual Reports, Report of Past Operations, Year Ten Annual Report).

Compliance monitoring of forest management activities is a joint responsibility shared between the SFL holder and the OMNR. The SFL holder is responsible for field inspections for compliance and non-compliance, reporting to OMNR, implementing corrective or preventive measures, and providing training and education to contractors and staff. OMNR audits industry compliance inspections, assesses the significance of instances of non-compliance and determines corrective and/or enforcement actions.

During the audit period, Weyerhaeuser, Domtar and Tembec all had compliance responsibilities on various portions of the Martel Forest land base. Tembec and Domtar and their contractors had shared compliance responsibility during the latter years of the audit period. The compliance program has been well supported by the Environmental Management System (EMS) developed under the auspices of ISO 14001 and Forest Stewardship Council (FSC) certification of both Domtar and Tembec.

The Five Year Compliance Strategies produced for the 2001-2006 and 2006-2011 plan terms were complete and consistent with the Guidelines for Forest Industry Compliance Planning. The Annual Work Schedules (AWS) all had properly completed Annual Plans of Action with specified levels of compliance activity.

The Chapleau District produced Annual Compliance Operation Plans (ACOPs) commencing in 2003 in response to a recommendation in the 2002 IFA. Our review indicated a continual improvement in the quality of the plans over the audit period.

Our review of compliance inspection reports filed by OMNR and the forest industry indicates a trend towards improved compliance. For example, the percentage of not-in-compliance incidences recorded by the OMNR declined from a high of 70% in 2002-2003 to 3% in 2006-2007 (Tables 6 and 7). It is our view that this positive trend is indicative of the cooperative relationship between OMNR and Tembec where regular

meetings are held and joint inspections are undertaken (as required). Tembec has also been effective in delivering training and education programs to staff and contractors. .

TABLE 6. INDUSTRY COMPLIANCE INSPECTIONS, SUPERIOR FOREST 2002-2006 AND MARTEL FOREST 2006-2007

Activity/Year	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Access	46 (1)	35 (3)	29 (1)	45 (2)	47 (3)
Harvest	203 (5)	126 (1)	90 (2)	88 (1)	96 (1)
Renewal	5 (1)	5 (1)	3 (1)	3 (1)	8
Maintenance	3	1 (1)	2 (1)	2 (1)	4
Protection	0	0	*	*	*
Total:	257 (7)	167 (6)	125 (5)	139 (3)	155 (4)
% NIC:	3	4	4	2	3

Source – Annual Reports - 2002-2004 are from FOCIS and 2004-2007 are from FOIP
*- Under FOIP there are only four main activities
( ) – Numbers in brackets are "Not in Compliance" Reports

TABLE 7. OMNR COMPLIANCE INSPECTIONS, SUPERIOR FOREST 2002-2006 AND MARTEL FOREST 2006-2007

Activity/Year	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Access	6 (5)	7 (4)	5	8	16 (1)
Harvest	17 (11)	3 (1)	21 (2)	16 (2)	14
Renewal	0	1 (1)	1	0	0
Maintenance	0	1 (1)	0	1	0
Protection	0	0	*	*	*
Total:	23 (16)	12 (7)	27 (2)	25 (2)	30 (1)
% NIC:	70	58	7	8	3

Source – Annual Reports - 2002-2004 are from FOCIS and 2004-2007 are from FOIP
* - Under FOIP there are only four main activities
( ) – Numbers in brackets are "Not in Compliance" reports

Tables 8 & 9 summarize the compliance activity on the Pineland-Martel Forest during the audit period[24]. The tables indicate a trend towards improved compliance over the audit period.

TABLE 8. INDUSTRY COMPLIANCE INSPECTIONS, PINELAND-MARTEL FOREST 2002-2006

Activity/Year	2002-2003	2003-2004	2004-2005	2005-2006
Access	37 (1)	54	42	23
Harvest	85 (2)	78 (4)	54 (1)	97 (1)
Renewal	27	26	9	9
Maintenance	4	0	3	8
Protection	0	0	*	*
Total:	153 (3)	158 (4)	108 (1)	137 (1)
% NIC:	3	3	<1	<1

Source – 2002-2004 are from FOCIS and 2004-2006 are from FOIP
* Under FOIP Protection is no longer reported
( ) designates Not In Compliance

TABLE 9. OMNR COMPLIANCE INSPECTIONS, PINELAND-MARTEL FOREST 2002-2006

Activity/Year	2002-2003	2003-2004	2004-2005	2005-2006
Access	11 (1)	13 (4)	14 (2)	6
Harvest	12 (1)	25 (4)	22 (1)	22 (1)
Renewal	0	0	5	1
Maintenance	0	0	0	0
Protection*	0	0	*	*
Total:	23 (2)	38 (8)	41 (3)	29 (1)
% NIC:	9	21	7	3

Source – 2002-2004 are from FOCIS and 2004-2006 are from FOIP
* Under FOIP there are only four main activities
( ) designates Not In Compliance

We conclude that the compliance program is adequate in terms of the number of inspections completed. However, the OMNR Compliance Technician currently has responsibility for three Forests which, at best, allows for one day per week on the Martel Forest. We believe that this level of activity must be viewed as an absolute minimum to ensure an adequate audit of industry activities. Maintenance of a consistent level of coverage from that single position is vulnerable to vacation leave, sick leave, absence

[24] In January 2005, responsibility for the management of the J.E. Martel Forest transferred from Domtar Inc. to Tembec.

due to training, etc. We provide a recommendation to address this concern in Section 3.5.1.

Tembec has an effective system for monitoring its silviculture program and updating its forest inventory. It conducts field surveys (aerial and ground) on a regular schedule to monitor and track regeneration success, vegetative competition, free-to grow status, the effectiveness of herbicide release treatments and the status of roads and water crossings. All renewal areas were visually assessed according to guidelines provided in the SGRs. Field observations of the audit team confirmed the successful delivery of the silviculture program.

In the development of the 2006 FMP, Tembec, in consultation with the OMNR, utilized Benchmark Growth and Yield Curves developed through the Forest Research Partnership. These yield curves have been developed using permanent sample plot data collected by OMNR, the Canadian Forest Service (CFS) and forest products companies throughout Ontario and Quebec. Tembec implemented a long term volume verification project in 2005 to monitor the effectiveness of the yield curves in predicting harvest volumes. Should the monitoring program indicate a need, the yield curves will be refined (by forest unit) for the development of the next FMP. This volume verification project is to continue for the FMP period or until a statistical confidence level is achieved.

An exception to the specific direction of the management guideline for Osprey was developed in anticipation of Osprey Guide revisions during the audit period. As required, a monitoring program was developed and implemented based on directions contained in the "Monitoring Protocol for Clearcut Harvesting around Osprey Nest Sites in the Boreal East, Outside the Timing Restriction Period" with approximately 90 nest sites being monitored for occupancy and/or productivity. No other exceptions monitoring occurred during the audit period.

In general, we believe that the current monitoring program is sufficient to provide for a comprehensive assessment of silvicultural effectiveness.

3.6.2. Annual Report

An Annual Report (AR) summarizes the forest management operations carried out during the preceding year (April 1st – March 31st). The purpose of the AR is to document the annual implementation of forest management operations, and to monitor progress towards achieving targets identified in the FMP. The text provides explanations for significant differences between the level of activity scheduled in the AWS and the level of activity that actually occurred. The text also discusses emerging trends or issues. The Plan Author is responsible for the preparation of the AR and OMNR has responsibility for specific components of the document.

We reviewed Annual Reports completed for each year of the audit period with the exception of the 2006-2007 AR which is not required until November of 2007. For the

years 2002-2003 and 2003-2004, the forest inspection section of the report did not meet the guidelines as the text is basically a reiteration of the data in the AR tables. There was limited discussion of the reasons for occurrences, the conditions surrounding occurrences, or plans to ensure occurrences would not happen in the future. In later ARs the quality of text improved. Since these reports were prepared by a previous SFL holder we do not provide a recommendation.

With the exception of the compliance text the ARs met reporting standards set out in the FMPM(s), the FIM and the Annual Report Preparation and Review Protocol. Explanations of any significant differences between the level of activity scheduled in the AWS and the level of activity that actually occurred were provided. Comparisons were provided for actual and planned activity levels in the FMP(s). Our review indicated that the information related to forest management activities was accurate.

3.6.3. Report of Past Forest Operations

We reviewed the 1997-2001 Report of Forest Operations (RPFO) for the Superior and Pineland and J.E. Martel Forests[25], and the Year 5 Annual Reports for the Pineland-Martel Forest and the Superior Forest

The 1997-2001 reports were four year RPFOs prepared as a result of the 1998 Ontario Judicial Court Review. The Year 5 Annual Reports were prepared in accordance with the Phase-in Provisions of the 2004 FMPM (to the extent possible) and the FIM.

The report for the Superior Forest was prepared by Tembec. The Pineland-Martel report was prepared by Domtar, with Tembec Industries providing information on the J.E. Martel Forest. Information contained in the reports was consistent with the information reported in the Comparison Trends Analysis of Planned vs. Actual Forest Operations Reports. Each report contained a section which provided conclusions on objective achievement and discussed the status of the recommendations of the 2002 IFAs.

The Report of Past Forest Operations and Year 5 Annual Report prepared for the Superior Forest provided a detailed assessment on the achievement of plan objectives. With respect to the Martel portion of the Forest, the Pineland-Martel Forest report concluded that *"planned objectives for both forests have been achieved or the intent of these objectives has been achieved."*

It is our opinion that the explanations for identified shortfalls in the achievement of planned targets were reasonable and that forest management operations have contributed to the long term sustainability of the Forest. Section 3.7 provides a discussion and our assessment of objective achievement and forest sustainability.

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[25] As per the 2007 IFAPP the 1997-2001 RPFOs were only reviewed for their conclusions, and the consideration of those conclusions in the preparation of the 2006 FMP.

The reports also included a review of modelling assumptions and recommendations to assist in addressing issues encountered during the implementation of the 2006 FMPs (i.e. Pineland FMP and Superior-Martel FMP).

Although prepared by different companies there was commonality with respect to some of the recommendations of the forest managers. These included recommendations related to:

- Reducing the area of bypass in forest operations.
- The marketing of poorly utilized species and products.
- On-going silvicultural effectiveness and compliance monitoring.

To varying degrees these recommendations have been implemented and/or addressed during the first year of the implementation of the 2006 FMPs on both the Pineland and Martel Forests[26].

Both forest managers emphasized the fact that the assessment of forest sustainability was limited and had been hampered as a result of;

- The significant changes to the planning landbase.
- A lack of data consistency between plan terms (i.e. changing definitions of forest units and wildlife habitats).
- The changing requirements of forest management planning.

We concur with this assessment and discuss it in Section 3.7.

3.7. Achievement of Management Objectives and Forest Sustainability

This component of the audit examines whether management objectives have been achieved and integrates the findings of other audit components to assess them in the context of sustainability. The assessment of sustainability relies on data prepared and presented by Tembec, analysis of this data by the audit team and on observations made in the field. A significant amount of data is provided by Tembec in The Comparison and Trends Analysis Report of Planned vs. Actual Forest Operations Report (Appendix A), Annual Reports, and the RPFO.

The Comparison and Trends Analysis Report of Planned vs. Actual Forest Operations Report requires the forest manager determine and assess reasons for emerging trends in forest statistics, while the RPFO is intended to serve as a background document which summarizes operations that occurred on the forest prior to the plan term and assists with the development of the current forest management plan.

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[26] Arbex Forest Resource Consultants Ltd. was retained for the 2007 IFAs of the Pineland and Martel Forests.

Achievement of Management Objectives

Assessment of the achievement of management objectives for the Martel Forest is complicated by the fact that the Forest is a new management unit consisting of two parts which in the past had been managed separately. The Superior portion of the Forest was managed under its own 2001Superior Forest Management Plan while the J.E. Martel portion was previously managed with the neighboring Pineland Forest as part of the 2001 Pineland-Martel Forest Management Plan.

In Table 10 we provide our assessment of achievement of the objectives of the 2001 Superior Forest FMP. It was not possible to separate management objectives for the J.E. Martel portion of the 2001 Pineland-Martel Forest Management Plan, so Table 11 provides our assessment of objective achievement for the 2001 Pineland-Martel Forest FMP. Some objectives and targets for the 2001 Pineland-Martel Forest (PMF) FMP could only be partially assessed due to changes in the planning land base.

TABLE 10. SUMMARY OF THE STATUS OF THE 2001 SUPERIOR FOREST FMP OBJECTIVES

2001 Objectives	2001 Targets (summarized)	Auditor Comments
Forest Diversity Objective		
Objective: To manage the Superior Forest in a manner that maintains Forest diversity while providing for a future forest condition that emulates natural disturbance patterns, maintains forest health, minimizes loss of productive forest land and preserves/restores rare forest elements.	Over the next five years, the productive forest area is targeted to increase by 15,000 ha to approx. 757,000 ha through the successful renewal of barren and scattered areas. The productive forest area of the Superior Forest will increase over the long term (100) years to approximately 778,436 ha.	There was a decrease in productive area at the end of the 2001 plan period due to changes in interpretation of the forest inventory. Although an increase in productive forest area did not occur, there was a significant decrease in the area classified as "barren and scattered" (≈12,200 ha to 2,000 ha).
	...the area occupied by roads, landings and gravel pits does not exceed two percent of the total land base over the next 100 years.	An analysis was completed by Tembec using four years of depletion data to try to quantify the amount of area being lost to roads, pits and landings, by forest unit. The percent conversion was in line with the FMP target.
	Forest growing stock will reflect the natural benchmark forest 250 years from now ....maintain 40 million m^3 of growing stock distributed as 34% jack pine,	This is a long term target incorporated into the Selected Management Alternative.

	22% spruce, 21% poplar, 13% white birch, 7% other conifers, 2% other hardwoods and 1% red and white pine.	
	The target forest composition of the Superior Forest...25% jack pine, 24% mixed conifer uplands, 20% hardwoods, 14% mixed conifer lowlands; 13% intolerant hardwoods; 2% other hardwoods and 25% red and white pine.	This is a long term target incorporated into the Selected Management Alternative.
	The Superior Forest will have an age class structure which will retain ...3% of the area in overmature forests and 14% in mature forests by forest unit group, within 150 years.	Tembec reports that in allocating stands for harvest, blocks were configured to ensure that the target of 14% was met. Areas bypassed during harvest operations could also contribute to the 14% existing in harvest allocations. This target has been met, or exceeded.
	An average of 14% of the area within disturbance areas will remain in residual parches after harvest to emulate natural disturbance.	From our field observations and a review of the Forest Operations Inspections reports we conclude that the target was being met.
	...retain 60 to 100 residual trees per 10 ha with at least 20 trees per 10 ha greater than 30 cm diameter...clumps will be preferred to individual trees ....distributed over the harvest area.	This target has been met.
	Over the long term, the available forest area occupied by red and white pine will not drop below the 2001 inventory of 100 ha.	This target was exceeded. Seven hundred and fifty-two hectares of white and red pine were renewed while the harvest of pine was negligible.
	Restore a minimum of 100 Ha of PRW or PW1 through conversion ...desired level over the 5 year operating period is 600 ha.	

PROVISION OF FOREST COVER OBJECTIVE		
To provide a forest which is capable of supplying the habitat needs of wildlife species while emulating natural disturbance patterns.		This objective was not fully met. Forest management guidelines to protect wildlife values were generally applied; however the 2001 FMP did not meet the minimum requirement for 10% of the capable area to be in suitable condition for marten core habitat. This shortfall was a trade-off made to meet wood supply objectives.
SILVICULTURE OBJECTIVES		
To deliver an effective silviculture program which will contribute to meeting the desired future forest condition and provide for a continuous supply of timber of the quantity and quality required by the wood using industries for which the Superior Forest is a source of supply.	Harvest approx. 7,562 ha per year.	The harvest area target was not met. Only 64% of the area for all forest units had been harvested over the 5 years of the 2001 FMP. Lower than expected area harvested was due principally to larger amounts of bypass[27] as a result of stands containing unmerchantable volumes of white birch. There were also poor markets for larch, cedar and low grade hardwood; a mill shutdown; and AOC restrictions including harvest size restrictions during the 2001-2002 operating year.
	Regenerate more than 7,581 hectares per year with approx. one-half being renewed naturally and the remainder being artificially renewed.	Regeneration was 79% of planned. The total area treated for regeneration, site preparation and tending was 66% of planned. Given that the harvested area was only 64% of planned, these levels are reasonable.
	Pre commercially thin 100 hectares per year and commercially thin 200 ha per year.	Thinning targets were exceeded.
	52,000 ha will be assessed	

[27] Bypass is area that is not harvested because of poor operability, accessibility, and merchantability. If markets aren't available for certain species or products, areas with high concentrations of unmarketable wood may also be bypassed.

To explore options for managing mixedwood sites to ensure maintenance of the mixedwood forest condition on the landscape while ensuring that marketable timber products found in these stands continue to be made available to area mills.	over the 5 year planning term for determination of regeneration success.	Approximately 49,000 ha were surveyed for free to grow status. 74% of the surveyed area was declared free to grow. Tembec has implemented several strategies to ensure mixed wood forest units are maintained. These include investigating site impacts from harvesting operations and delaying artificial regeneration on mixedwood sites.
SOCIO-ECONOMIC OBJECTIVE		
To provide for sustainable consumptive and non-consumptive uses for the forest to achieve social and economic well–being through the provision of opportunities for timber harvesting, access development (or avoidance), employment creation and maintenance, and economic development.	To annually harvest over the term of this plan an average of: • 524,000 m^3 of spruce-pine-fir • 2,723 m^3 of red and white pine • 214,000 m^3 of poplar • 55,000 m^3 of white birch • 5000 m^3 of firewood	• Conifer utilization was 77% of planned amounts. • Red and white Pine harvest volumes achieved only 20% of planned levels due to a mill closure. • 71% of the planned white birch harvest was achieved.
INTEGRATED RESOURCE MANAGEMENT OBJECTIVES		
To provide for the adequate protection of other values. To minimize conflict between		Met –see comments below. Met –see comments below.

the forest industry and other user groups. To not prevent other legitimate users from achieving their objectives. To ensure that there are opportunities for other uses of the forest through sequential or concurrent multiple-use of the resource. To maintain community stability for continuous local economic benefits. To increase First Nations involvement with forest management on the Superior Forest. To protect all known cultural and spiritual values. To provide for continuous opportunities for recreation and tourism.		AOCs included reserves around trapline cabins, reserves on high potential cultural heritage and known cultural heritage sites, modified operations and timing restrictions on resource based tourism and cottager lakes. The consultation process helped all involved parties to better understand the issues and to minimize conflict between user groups. The Selected Management Alternative was designed to provide continuous benefits to the community. First Nations, the LCC, tourist outfitters, trappers, cottagers and other members of the public were consulted during the 2001 FMP. AOCs and reserves on high potential cultural heritage and known cultural heritage sites protected values. Modified operations and timing restrictions were provided for resource based tourism operations and recreational lakes.

Table 11. Summary of the Status of the 2001 Pineland-Martel Forest FMP Objectives

Objectives	Target(s)	Comments
Forest Diversity Objectives		
To approach the relative proportion of forest cover types that would naturally occur on the Pineland-Martel Forest.	To maintain the current forest cover types as defined by the Standard Forest Units within +/- 20% of the natural bounds of variation as defined by the Natural Benchmark SFMM run. To maintain a minimum of 100 % of the current area of the white pine shelterwood (PW1), white pine seed tree (PW2) and tolerant hardwood (OH1) forest units on the landscape.	The objective was addressed mainly through the analysis of the different management alternatives in the SFMM. Our assessment is that the objective was met as the area forecast for harvest was within 1% of the AHA for most Forest Units and the planned harvest area did not exceed the AHA. This target cannot be measured due to the change in the planning land base between the 2001 PMF FMP and 2006 PF FMP.
To provide a level and type of disturbance that moves towards resembling that which would occur naturally on the forest.	Landscape Target: Create the following range of disturbance sizes over the 1986-2006 period to simulate as best as is operationally possible a natural disturbance pattern. Landscape Target: Maintain at a minimum one internal residual patch per one hundred hectares of new harvest area for the 2001 to 2006 period. Stand level targets: Maintain a minimum of 60 dead or declining trees per 10 ha. Maintain a minimum of 100 downed logs per 10 ha.	The frequency distribution on the landscape at the end of the 2001-2006 planning term moved toward the natural disturbance template in all but three size classes. Targets related to residual patches and number of dead, declining trees or downed logs per hectare was met.
To increase the conifer component of the forest to more closely reflect the historic forest condition.	To increase the level of jack pine growing stock on the forest to 21% within 100 years. To maintain the level of white and black spruce growing stock on the forest at 30% or greater over the next 100 years.	Artificial renewal achieved 101% of forecast targets during the plan term. While direct comparisons of area treated are not possible due to changes in reporting specifications it can be inferred that the objective was met.

To increase the white and red pine component of the forest to more closely reflect the historic forest condition.	To increase the level of white and red pine growing stock on the forest to 2% within 100 years.	A total of 251,000 white and red pine seedlings were planted which represented ~200% of the plan forecast level. Harvest levels in the Pw1 and Pw2 forest units were also below forecast levels. On this basis we conclude that progress is being made in the achievement of this objective.
To maintain a portion of the forest that exhibits old forest characteristics.	To maintain 15% of the Forest in a mature state. To maintain 3-5% of the Forest in an over-mature state as detailed in the following table.	Comparisons of targets are not possible due to the change in the planning land base.
To conserve the genetic diversity of tree species on the Pineland-Martel Forest.	To plan for natural regeneration on at least 40% of harvested areas.	This objective was exceeded as 45% of renewal was by natural regeneration.
Socio-Economic Objectives To provide a sustainable supply of timber products to meet the requirements of Domtar Inc. wood processing facilities.	Provide annually 421,239 m^3 of SPF timber.	This objective was met in the planning process. For the plan term the forecast harvest for SPF timber was 430,852 m^3. Actual wood utilization was 81% of the forecasted level. The utilization level for all conifers was 74% of the FMP forecast.
To provide a sustainable volume of hardwood timber products to meet the requirements of hardwood processing facilities with supply directives from the forest.	Provide annually 222,044 m^3 of poplar OSB. Provide annually 40,000 m^3 of birch OSB. Provide annually 27,200 m^3 of poplar veneer.	The actual poplar utilization level was 64% of forecast and the birch utilization was 329% of the FMP forecast. Birch levels were significantly higher due to markets for OSB grade wood during the plan term. The utilization level for all hardwoods was 67% of the forecast level.
To provide opportunities for recreational and commercial land use activities on the forest.	To develop at least one Resource Stewardship Agreement during the course of this plan.	This target was not achieved. However the objective of providing opportunities for recreational and commercial land use activities on the Forest was achieved.
To provide opportunities for First Nation involvement in forest management activities.	To develop at least one agreement for First Nation involvement in forest management activities during the course of this plan.	The intent of this objective was achieved with the signing of an agreement between Domtar and the Mattagami First Nation.

To minimize the loss of timber values to fire and insect damage.	No significant loss of timber values due to fire or insects.	Several strategies were adopted to achieve this objective (i.e. preparation of annual fire plans, completion of surveys for major insect infestations). The objective was met as there were no significant losses of timber values to fire or insects.
Provision of Forest Cover Objectives		
To maintain an acceptable level and quality of wildlife habitat.	To maintain a minimum of 10% of the forest, that has the capability to produce marten in suitable conditions over the next 60 years.	This target was met by the harvest deferral of 57,118 ha of marten core areas.
	To maintain the area of wildlife habitat units within minus 20% of what would naturally occur on the forest.	The target was met by the maintenance of a minimum 20% of habitat units expected to occur in the natural forest.
To undertake all forest management operations using sound environmental practices such that any negative environmental impacts are minimized.	No significant negative environmental impacts as a result of forest management activities.	This objective was met as there were no significant negative environmental impacts reported in FOCIS or FOIP during the plan term.
Silviculture Objectives		
To enhance the value, growth and yield of forest stands on the Pineland-Martel Forest.	Perform 400 ha commercial thinning of jack pine per year.	This target was partially achieved. A total area of 1,216 ha of commercial thinning in jack pine was undertaken during the plan term (61% of the forecast area). The underachievement of the target is attributed to the fact that candidate sites did not meet operational requirements (i.e. minimum harvest volume criteria).
	Perform 250 ha spacing (pre-commercial thinning) per year.	This target was partially achieved with the completion of 280 ha of PCT during the plan term (33% of the forecast area). This underachievement was due to the fact that the majority of candidate sites were not conducive to PCT treatments.
	Establish 2,100 ha of intensive conifer plantations	The target was achieved as 12,817 ha of plantations were established during the plan term (116% achievement of forecast level).

	per year.	
To improve the quality of low volume and/or degraded forest stands.	Perform improvement cuts on 150 ha annually.	This target was substantially met with 740 ha being treated during the plan term (99% of the plan forecast level).

The 2006 Superior-Martel Forest FMP

The 2006-2007 Annual Report will compile data and information with respect to the progress being made towards the first year achievement of the objectives and targets of the 2006 FMP. This document is not required until November 2007, thus reporting on specific objective and target achievement for the 2006 FMP was not feasible at the time of our audit (a summary of the objectives and targets of the 2006 FMP is provided in Appendix G). However, a general assessment of some of these objectives and emerging trends was possible, and we conclude that:

- Many of the FMP objectives and targets such as volume of forest growing stock, forest composition, non-spatial diversity measures, and age class structure are set during management planning and are met when developing the Selected Management Alternative.
- Many achievement levels will be lower than planned in the first year of the FMP due to the downturn in the forest products sector, the temporary elimination of the herbicide program and a reduction in the number of harvest blocks due to the IEA request.
- Biological diversity is being maintained through the satisfactory implementation of NDPEG and silviculture. During the audit we observed forest management activities that provided a diverse pattern of cutblocks across the landscape, provided for a mix of tree species and age classes, and successfully renewed harvested areas.
- We observed no evidence of serious negative environmental impacts associated with forest management activities and note the continuing trend in compliance improvement during the implementation of the 2006 FMP.
- A positive trend in hardwood utilization rates (particularly birch and poplar) for OSB production is emerging which will facilitate the achievement of long term plan objectives, if the trend is sustained.

Review of the RPFO/Year Ten AR Assessment of Sustainability

We examined the Year Five Annual Report for the Superior Forest and the Year Five Annual Report for the Pineland-Martel Forest for our review of the assessment of forest

sustainability[28]. The reports, to the extent possible, were prepared in accordance with the "Phase-in Provisions" of the 2004 FMPM.

Information required to fully assess forest sustainability was not available or not in a suitable format in previous plan documents to enable a comprehensive assessment of the achievement of forest sustainability criteria for the Superior Forest. Additionally, comparisons between the 2001-2006 and 2006-2011 plan terms are extremely difficult due to the change in the land base. For these reasons the AR Report Author does not provide a definitive statement with respect to the achievement of forest sustainability, but discusses in the text and tables (to the extent possible) data trends across plan terms.

In the Year Five Annual Report for the Pineland-Martel Forest, the AR Report Author concluded that "*From the assessment of the various criterion and indicators of sustainability it is difficult to conclude that the Pineland-Martel Forest is being/has been managed sustainably as the information required to do the assessment is either not available over multiple terms or is in formats not readily comparable amongst plan terms. However from the information that is available it can be concluded that the forest management operations carried out on the Pineland-Martel Forest have contributed to the sustainability of both the Pineland and Martel portions of the former PMF.*"

As required the report included an analysis of forest disturbances, review of renewal and tending activities, review of forest modeling assumptions, assessment of objective achievement and determination of sustainability for the 2001 FMP for the Superior Forest.

The data trends on the Superior and Pineland-Martel Forest are more fully discussed in the sections below. Until several consecutive FMPs have been prepared using comparable parameters such as a common land base and consistent forest unit designations, information gaps related to forest sustainability will continue to exist.

Review of the Comparison and Trends Analysis of Planned vs. Actual Forest Operations Report

The Forest Manager is required to complete a "Comparison and Trends Analysis Report of Planned vs. Actual Forest Operations Report as a requirement of the Independent Audit Process. The purpose of the report is to examine trends in planned vs. actual forest operations over time in order to provide a comparison of the current state of the Forest relative to its historic state.

The report was prepared in accordance with the requirements of Appendix C of the IFAPP and is included as an appendix to this report (Appendix A).

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[28] The 5 Year AR functions as the Year 10 AR.

It is noteworthy that as a consequence of the joint management of the Pineland and J.E. Martel Forest during the 2001FMP it was not possible to separate information related to the Martel portion of the plan during that period. The report compared and contrasted data from the 2006 Superior-Martel FMP and compiled data from 1997 Superior Forest and J.E Martel Forest information. Additionally, to provide context to the reported data trends the Forest Manager provided analysis of silvicultural data based on achievement of targets in the context of the early renewal of the 1997-2002 FMP (i.e. 4-year target achievement) and in the context of actual harvest levels achieved during 2001-2006. The trend analysis indicates that plan targets and objectives were largely met over the reported plan terms.

The following trends are reported:

- One indicator of sustainability is the area of managed Crown forest available for timber production. All forest units have been altered since 1997 therefore the percent change by forest unit cannot be determined. However, a comparison of the total amount of managed Crown forest area can be made for the beginning of each plan term. The Crown managed productive area increased between 1997 and 2001 as a result of improved accuracy in the measurement of non-forest features (i.e. lakes) and information from the survey of backlog barren and scattered areas. A decrease in Crown managed productive area occurred between the 2001 and 2006 FMPs (704,960 ha to 694,034 ha). This decrease was accompanied by an increase in the area classified as protection forest (3,466 ha to 18,418 ha). This resulted from the 2006 FMP direction which included "*protection forest reserve stands*" in the protection forest category and the update of the 2006 planning inventory with a new stewardship inventory.
- There has been a significant decrease in the area reported as "B&S/NSR" and a significant increase in the area reported as "Depleted". The decline in the area classified as "B&S/NSR" reflects adjustments to the forest inventory to more accurately differentiate between recent depletions and true barren and scattered areas.
- The actual area harvested during the plan terms has been at 64% of the planned levels. Contributing factors for the underachievement included a mill shutdown, timing restrictions, and poor markets for low grade hardwoods.
- Harvest volumes were below planned levels (75% and 79% of planned for the two terms). The diminished volumes were attributed to lower than planned harvest activity, low merchantable volumes and poor markets. In the 1997-2001 term, conifer volumes achieved 83% of the planned target and hardwood achieved 57% of the FMP target. The underachievement was attributed to lower than planned harvest activity, poor markets for low grade hardwoods and the salvage harvest associated with a Chapleau wildfire. For the 2001-2006 plan term conifer harvest volumes achieved 78% of the planned target and hardwood levels attained 80% of planned. The positive trend in hardwood harvest reflects increased utilization of white birch and poplar for OSB production. Red and white

pine harvest declined during the term due to the closure of the Pineal Lake Lumber mill.

- Renewal targets have been underachieved with respect to planned levels largely due to lower than planned harvest levels. The total area of planned renewal and tending for the 1997-2001 planning term was 83,752 ha. The actual area treated was 65,029 ha (78% of planned). For the 2001-2006 plan term the area planned for renewal and tending treatment was 82,382 ha. The actual area treated was 54,764 ha (66% of planned). However, when viewed in the context of the actual area harvested levels of actual renewal and tending approximated or exceeded planned levels. Exceptions to this trend were chemical site preparation (1.8% of planned) where chemical tending was conducted following planting rather than as a pre-planting treatment as forecast in the FMP.
- Free-to-grow survey results for areas harvested between 1992 and 1997 indicate a 94% renewal success rate.

It is our opinion that none of the reported trends indicate a risk to forest sustainability.

Achievement of Forest Sustainability

Assessment of forest sustainability includes an examination of measurable indicators of forest sustainability criteria, and an analysis of changes to forest and socio-economic conditions. At the management unit level, the FMPM has five criteria which are used as indicators of forest sustainability:

- Biodiversity.
- Forest Condition and Ecosystem Productivity.
- Soil and Water Conservation.
- Multiple Benefits to Society.
- Accepting Society's Responsibility for Sustainable Development.

To arrive at our assessment of the achievement the sustainability criteria (Table 12) we reviewed:

- The steps taken to produce the 2006 FMP including the analysis of Objectives, Strategies and Management Alternatives.
- The Achievement of the 2001 FMP Management Objectives.
- The RPFO Assessment of Sustainability.
- The Comparison and Trends Analysis of Planned vs. Actual Forest Operations Report.
- The Year Five Annual Reports for the Superior and the Pineland-Martel Forests.

Table 12. Summary of Achievement of Forest Sustainability Indicators

Forest Sustainability Criteria	Met (yes/no/partial)	Audit Team Comments
Biodiversity	Yes (with uncertainty as to trends)	The 2006 FMP Selected Management Alternative outperformed the other alternatives with respect to the provision of wildlife habitat and in every case was above the minimum area target. No conclusions can be made in comparing the amount of preferred habitat for selected wildlife species predicted by the 2001 FMP to the amount actually created through implementation of the plan. This circumstance is attributable to changes in wildlife habitat definitions and changes to the forest resource inventory structure between 2001 and 2006. In the 2006 FMP the habitat selected for wildlife species was only calculated for the Superior-Martel Forest, not the Superior Forest without the Martel addition. The 2006 actual values for Age Class, Forest Unit Area and Habitat Unit come from the Superior-Martel Forest 2006 FMP, so a direct comparison between these values and those from the Superior Forest 2001 FMP cannot be made (due to the addition of the Martel portion). However, the indices, as calculated for the 2006 FMP, are all within acceptable levels assigned in the 2001 FMP.

		These projected forest unit transitions in the 2006 FMP show movement toward the desired future forest condition.
Forest Condition and Ecological Productivity	Yes (with uncertainty as to trends)	Site productivity is not diminished and a range of naturally occurring species is being maintained. The sustainability criterion of changes in Total Productive Crown Forest by Working Group over successive planning terms could not be accurately assessed due to boundary modifications, coding changes and other factors.
Soil and Water Conservation	Yes	There has been an increase in the productive forest area within second order watersheds that were clearcut or burned. This was due largely to an increased level of natural disturbances (i.e. wildfires).
Multiple Benefits to Society	Yes	A decrease in Crown managed productive area occurred between the 2001 and 2006 FMPs, principally due to a change in forest classification. The SMA scored highest for indicators of sustainability and was designed to try to ensure stable social and economic benefits. The 2001 FMP did not meet the minimum requirement for 10% of the capable area to be in suitable condition for marten core habitat. However, in the development of

		the 2006 FMP the amount of suitable marten habitat within core areas was within the bounds (10% - 20%) recommended by the guidelines. There was an increase in the amount of harvest area utilized from the 1997 plan.
Accepting Society's Responsibility for Sustainable Development	Yes	There was extensive First Nations involvement in a modified FMP consultation / participation process. The SMA included adequate funding for anticipated silviculture activities. The LCC was involved in the planning process and rated their effectiveness at 7.2 on a scale of 10.

We do have some concerns with respect to sustainable forest management on the Martel Forest. These concerns are based on the following;

- Inadequate funding and high rates of staff turnover at OMNR which has hampered the delivery and maintenance of OMNR values collection and reduced its field presence.
- It is very difficult for forest managers to track some sustainability indicator trends through time due to changes to the planning landbase, data inconsistency between plan terms (e.g. changing definitions of forest units and wildlife habitats), and changing forest management planning requirements.
- Forest management deferrals resulting from the application of the IEA process has delayed forest management activities on a significant area of the Martel Forest. As a result of the deferrals treatment backlogs exist and some losses of the investment in site preparation and forest renewal have occurred. Additionally, timelines for achieving the intended effects of silvicultural (i.e. improvements to growth and yield by reduced vegetative competition) will have been extended. These circumstances have implications with respect to the achievement of FMP objectives and sustainable forest management. Monitoring of sites and remedial action(s) will be required to ensure that investments in silvicultural are not lost and that long term forest management objectives are achieved.

Sustainability Conclusion

The IFAPP requires that the auditor provide an opinion on the achievement of management objectives and forest sustainability. Our assessment includes recognition that Tembec's FSC certification and corporate Environmental Policy and Forever Green Program[29] are conducive to responsible resource stewardship, continual improvement in environmental performance and promote sustainable forest management.

Based on our audit findings we conclude that the forest management objectives have been substantially achieved and that the Martel Forest is being managed sustainably.

3.8. Contractual Obligations

During the audit period, Weyerhaeuser, Domtar and Tembec were all responsible for the management of portions of the Martel Forest. Tembec is the current SFL holder and we have focused our assessment on its performance. Table 11 provides our assessment of the achievement of contractual obligations. During the audit period two separate SFL licences were in effect on the Martel Forest (SFL # 550390 and SFL # 541842). We were informed that the OMNR is currently drafting a single licence for approval by the Minister.

As a result of the 1997-2002 IFA, SFL # 550390 has a conditional term (2002-2020) with its renewal being contingent on OMNR's assessment that the audit recommendations have been satisfactorily met. The 2002 IFA recommended that the Minister extend the licence for a full twenty-year term. The final amendment to change the license term had yet to be completed at the time of the audit.

SFL # 541842 does not carry a similar condition and may be extended in accordance with the CFSA.

[29] Forever Green Program Principles include amongst others; Respect for all Laws and Regulations, Sustaining Forest Productivity, Maintaining Environmental Integrity and Forest Conservation and Maintenance of Biodiversity, Sustaining Economic Benefits, Developing Relations with First Nations, and Monitoring and Continual Improvement.

TABLE 13. SUMMARY OF CONTRACTUAL OBLIGATIONS AND AUDITOR COMMENTS ON THE LEVEL OF ATTAINMENT OF THE CONTRACTED OBLIGATIONS FOR SFL # 550390 - Superior Forest

Contractual Obligation	Level of Attainment
1. Complied with the terms and conditions of the SFL.	Our assessment is that the Company substantially complied with the terms and conditions of the SFL.
2. Paid up to date all annual area (if applicable), forestry futures and Ontario Crown Charges.	All required payments were up-to-date.
3 The company must comply with the wood supply commitments specified in the SFL licence documents.	Wood supply commitments were met or exceeded in most instances. Mill closures and/or labour disputes resulted in the some deliveries being below committed levels.
4. Ensure the allowable harvest level in the FMP met the actual SFL condition, and where that was not sufficient, ensure sharing arrangements stated in the SFL were carried out.	Wood supply commitments were met by the calculated harvest level.
5. Prepare FMP, AWS, and other reports in accordance with the CFSA and the FMP and abide by those reports and other requirements described in the FMPM and CSFA.	Reporting was completed as required and was in accordance with the requirements of the FMPM and CFSA obligations.
6. Conduct inventories and surveys that are the responsibility of the SFL and carry them out in accordance with the FIM.	The Forest Resource Inventory was updated for the preparation of the 2006 FMP. Inventories and surveys were conducted to monitor silvicultural effectiveness and determine renewal status (i.e. survival assessments, Free-to-Grow).
7. Provide information that is the responsibility of the SFL, and collect that information in accordance with the FIM.	All information requirements were met and collected in accordance with the FIM.

8. The SFL company shall not commit wasteful practices as described in the Forest Operations and Silviculture Manual or the Scaling manual.	In 2002-2003 there were incidences of poor utilization. There were no reported incidences of wood wasteful practices during the latter years of the audit period. Audit site inspections did not observe any wasteful practices.
9. SFL conditions related to natural disturbance and salvage must be followed.	Forest operations met NDPEG requirements. No salvage operations were conducted during the audit period.
10. The SFL company will participate in pest control programs in accordance with SFL conditions.	No pest control programs were required during the audit period.
11. Where land is withdrawn from the licence area the conditions in the SFL related to withdrawals shall be followed.	Land withdrawal conditions were met.
12. Prepare an Audit Action Plan responding to audit recommendations within 2 months of receiving the final audit report. Implement the Action Plan. Prepare a Status Report within 2 years of approval of the Action Plan. **Note**: The Action Plan and Status Report are jointly prepared by the OMNR and SFL holder.	The reports contained all the required material including specific actions, timelines, and reporting milestones.
13. The SFL company shall pay all renewal charges to the Forest Renewal Trust and comply with all terms of the Forest Renewal Trust Agreement.	All renewal charges were made and complied with the terms of the Forest Renewal Trust Agreement.
14. Forest renewal charges will be analyzed and determined in accordance with SFL conditions. The analysis will be undertaken in conjunction with the term of the	The 5 year analysis of the Forest Renewal Trust account was completed as required. The company completed an annual analysis of their silvicultural costs and expenditures in order to determine

FMP.	what the expected costs would be in the next operating season.
15. The minimum balance must be maintained in the Forest Renewal Trust Account each March 31st.	The minimum required balance for the Superior Forest is $2,669,600.00 The minimum balance was retained each year.
16. Maintain records and maps of eligible silvicultural work implemented from the Renewal Trust Account.	Ten percent of the Renewal Trust Account projects were inspected during the field audit. We determined that all of the required information, maps and project records were maintained as required. Boundaries of the treatments we observed conformed to maps maintained by the Company. Treatments were appropriate for site conditions and were effective in meeting silvicultural objectives.
17. SFL conditions related to silvicultural standards must be followed. • Meet silvicultural standards on X and Y lands, or Category 2 lands- regardless of who did the harvesting or eligible silviculture work. • Undertake tending in class Z areas and ensure documentation and mapping. • Category 1 lands must be mapped and documented.	There are no X or Y lands on the Forest. Silvicultural standards were met on all lands. Standards were met on Category 2 lands.
18. Report on the achievement of regeneration including the assessment of free-to-grow and preparation of stand descriptions for entry into the inventory.	The Annual Reports on the assessment of regeneration success were completed.
19. The SFL company shall work co-operatively with local aboriginal	Tembec has strong corporate direction with respect to the involvement of First

communities to identify and implement ways of achieving more equal participation in the benefits provided through forest management planning.	Nations in forest management. The Chapleau Office worked cooperatively with First Nations in the forest management planning process and provided employment opportunities for FNs during the audit period.
20. The SFL company shall prepare a forest compliance plan in accordance with all standards established by OMNR.	The Five-Year Forest Compliance Strategy (Plan) was completed and met all standards. All AWSs contained the required Annual Plan(s) of Action.
21. The SFL company shall establish and deliver an internal compliance prevention/education program and provide for individual staff training to competency standards approved by the OMNR.	The Company has an extensive internal compliance and education program which was effective in minimizing non-compliance in forest management operations.
22. The SFL company must conduct inspections of forest operations and deliver reports to OMNR in accordance with the company's approved compliance plan.	Forest operations inspections were completed as planned..
23. Where the SFL company undertakes activities on mining leases or claims it assumes responsibility for all forestry activities in those areas. The OMNR will advise recorded and patented claim holders of the company's intent. The company will be available to discuss concerns or conflicts.	The Company ensured all mining claim holders were notified prior to any forestry activities on any claim or lease.

It is our assessment that Tembec has met its contractual obligations for SFL # 550390 (Superior Forest) and SFL # 541842 (J.E. Martel Forest) during the audit period.

Progress on Recommendations from Previous Audits

The 2002 Independent Audit conducted on the Superior Forest was submitted in April 2003. The IFAPP requires that the OMNR and Company jointly prepare an Action Plan

responding to audit recommendations within 2 months of the receipt of the final audit report. Approval of the Action Plan was received from the OMNR in November 2004.

A Status Report summarizing progress on the recommendations is required within 2 years following the approval of the Action Plan. The Status Report was submitted and approved on time in November 2006. Tembec and OMNR are to be congratulated for meeting the Status Report deadline where a significant number of recommendations (i.e. 31) had to be addressed during a period marked by land base amalgamations, staff turnovers and shortages, the development of the 2006 FMP, and two IEA requests.

Our assessment of the reported progress and completion of the Action Plan items is discussed below in Table 14.

TABLE 14. ASSESSMENT OF COMPLETION OF 2002 IFA ACTION PLAN ITEMS.

Recommendation	Audit Plan Action (November 2004)	Status Report (November 2006)	Auditor Assessment
OMNR should review the LCC's role and mandate with the committee through a collaborative review of the committee's Terms of Reference. The District Manager (DM) should meet with the LCC each year to review the performance, mandate and composition of the LCC.	District Manager will meet with the LCC and review the Terms of Reference (TOR). The TOR will be consistent with the FMPM and endorsed by the LCC and DM. The DM will meet with the LCC annually.	The TOR were updated and approved by the DM and LCC in March/February 2004. DM met with the LCC in 2004 and 2006.	Completed – The DM met with the LCC as required. Appropriate OMNR staff attended all meetings and informed the DM of issues and concerns. Interviewed LCC members indicated they were pleased with the OMNR support they received.
OMNR should ensure that the First Nation Liaison in Chapleau District is consistently and continuously available.	The OMNR will support the position for the 2003/2005 and 2005/2006 fiscal years.	The District maintained the specific position or the duties associated with the position (i.e. assigned to other positions) up to the time of the audit.	Completed – At the time of the field audit the position or its functions had been continuously filled and the position was advertised on a permanent basis.

OMNR should continue to provide support to enable the First Nations (FN) Communications Protocol to evolve and develop in the most effective directions.	The District will work plan and request funding to support the protocol.	The FN's decided not to participate in the communication protocol. However, a First Nation Task Team (FNTT) was established to provide input into the Superior FMP planning process.	Completed – Although FNs decided not to participate in the protocol we found that the FNTT was a very effective and successful approach to engage FNs in forest management. We recognize the initiative as a best practice in this audit report.
Corporate OMNR and OMNR Northeast Region should assess the strategy of managing marten habitat using 60-year deferrals for core habitat, examining both economic and ecological aspects of the strategy, and publish the results of the assessment in a document available to the forest industry.	OMNR will review current guidance with respect to reflecting the marten guide in forest modeling. Guidance will be provided to planning teams.	An interpretation note for the Marten guidelines was released by OMNR in September 2004. It provided interpretations to assist with consistency of application and methods to meet guide requirements in FMP wood supply modeling. Biodiversity training was provided to the Superior planning team. It included defining marten habitat in terms of capability and suitability.	OMNR continues to review and revise forest management guides. It is moving to the development of a landscape guide that consolidates directions found in the NDPEG, marten, caribou and moose guidelines. The interpretation note was applied to the 2006 FMP and will be used for FMPs until the marten guide is revised or replaced. In our assessment the Action Plan had been implemented and the intent of the recommendation has been met.
The company and the OMNR should continue the process of improving their relationship and should implement the recommendations identified at the	Monthly meeting have been initiated between the company and OMNR management staff to discuss issues and concerns.	Regular meetings have occurred.	In our view the OMNR and company currently enjoy a respectful and supportive relationship. Relationship building must be continually emphasized due to changing OMNR staff, and changing responsibilities of existing staff. At the time of the field audit the Action Plan had been

Fall 2002 meeting intended to review issues related to the production of the 2001 FMP.			implemented.
The OMNR and company should send letters of acknowledgement within two weeks of receiving public comments, even if follow-up correspondence is required to fully address the issue raised.	OMNR and Tembec will ensure letters of acknowledgement are sent to individuals within 15 days of receiving comments.	OMNR and Tembec developed a correspondence tracking system to ensure there were timely responses.	Partially completed. Some improvement in response time is still warranted. We sampled 40% (32 of 80) of the correspondence summary file to determine if public inquiries were responded to adequately and in a timely manner. Response times were somewhat slow, with 44% of the responses taking more than two weeks and 25% taking more that 1 month. Although some of the delays were due to the complexity of the requests, improvements in response time could still be made.
In developing biodiversity and wildlife objectives for the 2006 FMP, the planning team should assess and document the ecological implications of: - The modest old growth objectives of the 2001 plan; - The failure to meet the habitat requirements of the marten guidelines; and - The failure to meet all the wildlife habitat objectives of the 2001 plan.	The planning team will document historic and current forest contributions to marten habitat, old growth and wildlife habitat objectives.	Efforts were complicated by: - OMNR changes to OWHAM outputs, Ontario's old growth definitions and habitat matrix definitions. - the changed landbase due to the inclusion of the Martel Forest. These changes made it difficult to draw habitat comparisons between selected species in the developing 2006 FMP and the 2001 FMP. Marten core	The 2006 planning team responded effectively within the constraints of available information and OMNR directions. We remain concerned about the rate of change of SFL land bases and OMNR guidelines/directions that make it difficult to draw comparisons or assess results of decisions over time. However, given what was available to the planning team our assessment is that the Action Plans have been implemented.

The planning team should consider these analyses and other available information to develop a defensible rationale for the biodiversity and wildlife objectives in the 2006 FMP.	The 2006 FMP will include a comparison of old growth objectives from previous plans and will follow the Old Growth Policy. Where required the ecological rationale for marten objectives will be stated. The Marten Guidelines and Interpretation note will be followed. The planning team will provide an ecological rationale for wildlife habitat objectives that are not met in the 2006 FMP along with	areas from adjacent management units were considered. An Old Growth Task Team was created. Specific targets by forest unit/forest unit grouping were established for each forest unit over the planning horizon. All guidelines and directions were followed. A benchmark level of marten cores was determined for the unit. The final decision had; - 13% of habitat for the first 20 years, - 10% for the next 20 years, - 12% for the final 20 years. The 2006 FMP provides habitat for 19 regionally selected indicator species. Preferred habitat for all species were maintained within the bounds of natural variation (+ or – 20% of natural benchmark).	

	potential implications for meeting future habitat objectives.		
The OMNR and company should develop a long-term strategy for the management of White and Red Pine on the Superior Forest for inclusion in the 2006 FMP.	Establish a benchmark level for pine restoration in the 2006 FMP. Provide genetically viable seed sources to support the renewal efforts. The FTG survey program will monitor the success of renewal efforts.	A Red and White Pine Management Strategy was produced and used in the development of the 2006 FMP. The intent is to double the representation by 2106 (0.7% to 1.4%). Seed collection has been limited due to limited cone crops and harvest. However, some has been collected and other potential seed sources are being monitored.	On-going. The recommendation is being acted on and Tembec made progress towards achieving red and white pine renewal targets. A total of 857,372 white pine seedlings and 50,112 red pine seedlings were planted between 2001-2006. Some collection of red pine seed occurred, but no white pine seed was collected due to the scattered distribution of trees and lack of cone crops.
Corporate OMNR and OMNR Regional Offices should harmonize the methods used to calculate Table FMP-5.	OMNR will investigate harmonizing the methods for calculating preferred Habitat for Selected Wildlife Species (FMP 5) across OMNR regions. The resulting habitat matrices will be provided to planning teams for 2006 FMP's.	The 2004 FMPM has FMP-5 to FMP-8 (i.e. Projected Habitat for Selected Wildlife Species. A major difference is that the table no longer shows habitat statistics for areas beyond the management unit. A Working Group has been established to review the wildlife	Efforts by OMNR to harmonize the calculation of habitat for selected wildlife species are ongoing. Our assessment is that the recommendation has been substantially addressed. It is noted that reporting for areas greater than a management unit or for multiple areas is available in State of the Forest Reporting.

<table>
<tr>
<td></td>
<td></td>
<td>habitat matrix. The 2006 FMP used the altered habitat matrix for the northeast region (changes in the northwest OMNR region are not required until 2007). Planning teams are required to show original and modified matrices in their analysis.</td>
<td></td>
</tr>
<tr>
<td>In the next FMP, the planning team should either present a strong justification for its approach of converting mixedwood areas to "pure species" forest units or substantially reduce the extent of planned mixedwood conversion.</td>
<td>OMNR and Tembec received a report documenting the pre-settlement composition of the Forest. The information in that report will be used in the 2006 FMP to benchmark the pre-settlement abundance of forest tree species and develop future forest unit composition targets.

The historic FTG assessment data will be reviewed to see if mixedwoods are being converted to pure species forest units.</td>
<td>The report was used to describe the historic condition in the 2006 FMP. It does describe a significant decrease in the current amount of conifer dominated forest as well as a significant increase in the amount of intolerant hardwood dominated forest.

FTG data was reviewed. For some forest unit's data was "weak or non-existent". Professional judgment was used to determine likely successional pathways.

For the 2006 FMP there is an overall decrease in mixedwood forest units; however,</td>
<td>The 2006 FMP shows a decrease in the projected changes.

<table>
<tr><th>Unit</th><th>% change 2001</th><th>% change 2006</th></tr>
<tr><td>MW1</td><td>-68%</td><td>-50%</td></tr>
<tr><td>MW2&3</td><td>-70%</td><td>-26%</td></tr>
<tr><td>PJ1</td><td>+57%</td><td>+53%</td></tr>
<tr><td>PO1</td><td>+105%</td><td>+61%</td></tr>
</table>

Tembec is making a determined effort to reduce the extent of planned mixedwood conversion. Strategies have been implemented to augment the conifer component in mixed wood stands. Our field observations indicate that the strategies (i.e. corridor planting and tending) have been generally successful.</td>
</tr>
</table>

		model inputs were refined to ensure mixedwood was maintained on the unit (e.g. established boreal forest type targets, at least 50% of mixedwood sites will be extensively regenerated).	
The company should identify the schedule by which it is going to meet the research related objectives identified in the 2001 FMP.	New benchmark growth and yield curves will be utilized. Tembec will continue to support growth and yield research through permanent sample plots (PSPs). Tembec will continue to participate in research projects. Tembec will track estimated FRI volumes and actual harvest by contractors. Localized adjustments for yield curves may be used for the 2006 FMP. Tembec may use operational cruise data for yield curve adjustments.	New curves were used in the 2006 FMP. 41 PSPs were established on the Superior Forest in 2004. Tembec continues as a partner in the NEBIE Plot Network Project. Local conditions were used to calibrate yield curves; however actual harvest volumes did not identify trends that warranted modifications of benchmark curves. No adjustments were deemed necessary.	Tembec has a number of initiatives completed or underway. In our opinion the recommendation has been acted on.

	Tembec will review mixed wood management research and operational trials to develop mixedwood renewal prescriptions for the 2006 FMP. Pre-commercial and commercial thinning will be investigated to understand the scope and limitations of applications.	A suite of SGRs are used in the 2006 FMP to address the issue. A mixedwood operational trial has been established on the Forest. A pre-commercial thinning workshop/tour was conducted. Commercial thinning is being investigated as a fiber source.	
The OMNR, at either the provincial or regional level, should coordinate the efforts and analyses of those involved in osprey exception monitoring.	OMNR will review and distribute a revised protocol for exceptions monitoring for osprey and heron nests. Exceptions monitoring data for osprey nests is being collected and retained by the OMNR region.	A 2004 version of the monitoring protocol includes new information requests. A revised osprey guide was developed in 2006. Districts have submitted survey forms on nest AOCs that have been harvested and monitored. The information will be used in Stand and Site guides.	Completed – OMNR has developed a coordinated approach to analyzing the results of osprey guide revisions and monitoring programs.
Corporate OMNR should fulfill its obligations to	The OMNR District will continue to apply for values funding.	Funding was received for 2004 and 2005. No	Our analysis indicated that the OMNR is generally providing funding only where it has a

provide accurate and timely values information for use in forest management.	OMNR will develop strategies for alternate means of collecting non-timber values information. Superior-Martel Forest values Collection Plan was developed. Tembec was to be provided with up-to date values maps for the 2006 FMP.	funding was received for 2006. District and company staff will look for values information while carrying out other duties. At the information centers the public was encouraged to mark values on "scratch" maps. The LCC and FN's were provided with maps and encouraged to mark on values. Student programs were utilized. Tembec was provided with values maps in fulfillment of OMNR's obligations.	legal requirement associated with development of new FMP's. Where forest management planning is not being undertaken little or no funding is provided. While this pragmatic approach is dictated by limited funding it does raise questions about OMNR's long term commitment to its obligation to collect and maintain non-timber values information. This is discussed in Section 3.1. Our assessment is that OMNR staff members spend very little time on the Forest. As well, regular turn-over's and vacancies ensure that many staff members are inexperienced with respect to the forest geography and values (at the time of the field audit there was 1 contract biologist for 3 Forests). While cosmetically appealing "*scratch* "maps and student programs, as opposed to experienced observers and science based procedures, do not fulfill OMNR's obligations to collect, verify and maintain values data. We do not feel the intent of the recommendation has been met and the implementation of the Action Plans is insufficient to meet OMNR's obligations.
Corporate OMNR should develop mechanisms to ensure that the direction provided by OMNR Planning Team members,	OMNR is revising guides to include direction on how they should be applied to meet FMPM requirements. Guides will contain direction on the application	The direction has been followed in the development of new and revised guides.	Completed.

advisors, and reviewers is consistent throughout the plan development process.	with respect to geography and the plan year of implementation.		
The Ministry and company should develop procedures to document planning team and OMNR Regional approval of critical plan components.	A review process for key plan components at critical stages of development could be incorporated into the plan Terms of Reference.	The 2006 FMP included a Preliminary Endorsement/ Certification of Key Plan Components.	Completed for the development of the 2006 FMP.
Corporate OMNR should produce, and distribute to the appropriate parties, and provide to future recipients of the scaling manual, a written clarification or amendment of the portion of the Scaling Manual, which contains the confusing text regarding merchantability limits.	OMNR has developed a handout that provides clarification of the wasteful practices section of the Scaling Manual. The clarification has been provided at all Scaling refresher courses.	A "Provincial Utilization Course" is now being taught to bring OMNR and industry staff up-to-date.	Completed.
The Ministry should work with the company to develop a fair solution that will facilitate the utilization of the severely deformed portion of the harvest volume from the stands, which were heavily damaged about 40 years ago by an ice storm.	OMNR responded that the stands did not qualify for reduced harvest rates. Tembec will investigate options to utilize the volumes of deformed tops.	The timber does not qualify for reduced rates. The tops have been cleaned up.	Completed.

The company should strive to meet its FMP thinning targets and, in view of the wood supply concerns of the forest, be aggressive in searching for potential additional thinning areas.	Tembec pre-commercially thinned 10-year old jack pine. Tembec surveyed and categorized potential pre-commercial thinning (PCT) areas. Tembec has aerial surveyed and categorized potential pre-commercial thinning (PCT) areas (i.e. suitable, not suitable). Suitable areas will be ground surveyed for access potential. Stocking and density surveys have been completed for 1990-1995 seeded areas. These 9-14 year old stands will be ground surveyed for pre-commercial thinning.	Over 900 hectares have been pre-commercially thinned on the Superior Forest since 2002.	On-going. Pre-commercial thinning was completed with the assistance of funding from the FFT. The field audit confirmed that stand density targets were achieved on sites inspected and that the treatment was warranted.
The company should review and refine their prescriptions for jack pine direct seeding to ensure the best chance of success.	Tembec will develop an internal guide related to site selection for direct seeding of jack pine.	An operational manual for aerial seeding was developed by Tembec in 2004.	Completed.
The company and OMNR should work together to develop written standards for the installation of	Tembec will develop written standards for water crossing installations.	Tembec and OMNR Chapleau collaborated on a Draft Water Crossings Installation manual	Completed.

water crossings.	Tembec and OMNR staff will complete water crossing design, installation and sediment control training.	and it has been approved in the AWS since 2004-2005. Joint training sessions were held in 2004.	
The company should retrieve the culverts abandoned throughout the forest.	A strategy will be developed to locate and remove abandoned culverts.	During 2004 culverts were removed.	Completed. During the field phase of the audit we did not observe any abandoned culverts.
The company should implement efforts to reduce cross drainage problems and ponding on tertiary roads.	Tembec will discontinue the use of non-rigid plastic drainage culverts that can result in poor cross drainage and ponding. Tertiary road construction standards have been updated.	The use of the non-rigid drainage culverts has been discontinued. Tembec's Road Construction and Maintenance SOP include discussions on road construction procedures and cross drainage.	Completed. No compliance incidents with respect to ponding were reported during the audit period. No incidences were observed during the field audit.
The OMNR should develop a practical solution, by March 31st, 2005, to the issue of beaver dams that threaten to flood or wash out access roads in the Chapleau Game Preserve.	Water crossings will be surveyed to document those affected by beavers. A Nuisance Beaver Decision Tree will be developed to streamline the decision making process.	A Decision Tree was developed. All field testing has not been completed and the final product has not been distributed.	On-going. The time and effort expended to address this recommendation has been substantial (now into its 6th year).

	The Decision Tree and beaver baffles will be field tested.		
The company in collaboration with the Ministry should review the effectiveness of the measures it is using for access control and identify means to improve their effectiveness.	Existing "Road Use Management Strategies" will be reviewed including type of restrictions (i.e. signs and/or gates).	Work is ongoing to address issues.	Completed.
The company should ensure that the approved version of each planning document and report contains a signed signature page that identifies them as the original copy, and that the most current draft version of documents are so identified.	Two copies of the Signature Page will be submitted with the final version of each planning document or report.	Two copies are now being signed.	Completed.
Each year, the OMNR should prepare annual compliance operations plans, which address forest compliance monitoring consistent with OMNR policies, and should assign staff to monitor field inspections consistent with its responsibilities.	ACOPs will be produced on an annual basis.	ACOPs are being produced as per OMNR direction and policy.	Completed.

The company and OMNR should calibrate their interpretation regarding specific types and classes of non-compliance to achieve consistent reporting.	Joint compliance and management meetings will be held to resolve issues.	Joint meetings have been held and the OMNR and Company have achieved greater consistency with respect to assessment of non-compliance.	Completed. Joint inspections are now undertaken as required.
OMNR should send electronic FOIPs to the company in order to comply with FIM. OMNR should also ensure that FOIPs are entered into FOIP within 10 days as required by the Guideline for Forest Industry Compliance Planning.	OMNR will ensure inspections are entered into FOIP within 10 days of when the inspection is undertaken. The report will be submitted to the SFL holder. Non-compliance will be submitted to the SFL holder within 5 working days.	Revised OMNR policy (Jan 2005) provides 20 working days to complete and submit reports into the FOIP system. A 5 day deadline remains for non-compliant reports.	Completed. The number of late reports declined during the audit period.
The company should develop and implement a practical system for conducting pre-cut assessments.	Tembec will continue to use post-harvest assessments.	A number of post harvest assessment to evaluate direct seeding, CLAAG potential, and local terrain conditions are being applied. The EMS SOP is used to address soil conservation and disturbance.	Completed. Assessments are being undertaken and reporting on results is occurring.
The company should submit annual reports and annual report revisions on schedule and the OMNR should provide a timely review.	Tembec will meet FMPM and FIM reporting deadlines. OMNR will complete	Annual Reports are being submitted as required. Reasons for any delays are being provided. OMNR has substantially	Completed.

	required reviews within FMPM and FIM timelines.	completed reviews within the required timeframes.	
The audit team recommends granting a Sustainable Forest Licence for the Superior Forest for a full 20-year term.	The 2002 Superior Forest Independent Forest Audit Action Plan was fully approved as of November 5th; 2004.The Forest Management and Industry Relations Branches will make recommendations related to the SFL term based on the action plan, recommendations from the District Manager and the Regional Director, and an assessment of the status of implementation of the action plan. On the basis that the Minister accepts the audit recommendation, the term of the licence will be for the full 20 years.	The action plan was completed and implemented. The final amendment to change the licence term has not been completed.	Not completed. The final amendment to change the license term has yet to be completed.

It is our assessment that Tembec and OMNR have fully addressed or are making significant progress with respect to addressing the recommendations of the 2002 Superior Forest IFA. The requirement to amend the SFL term for the Superior Forest to a full 20 year term remains outstanding.

4.0. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Six recommendations and three suggestions are made to address issues and concerns identified during the audit.

Commitment

Tembec is FSC certified and we determined that the certification met IFAPP requirements. The FSC certification and corporate Environmental Policy and Forever Green Program are conducive to responsible resource stewardship, continual improvement in environmental performance and promote sustainable forest management.

At the corporate level the OMNR had produced comprehensive documents related to all aspects of forest sustainability. Those documents and messages were evident in the OMNR Chapleau District and staff was aware and supportive of them. However, the Chapleau District faces serious issues with respect to funding and staff turn-over which we believe undermine its ability to collect information, gain and retain field experience, and make decisions based on the knowledge of local field conditions. We provide a recommendation to address this concern.

Public Participation

Public participation in the 2006 FMP planning process met the requirements of the FMPM.

All requirements with respect to First Nation consultations and efforts to involve aboriginal communities in the forest management planning process were met. The Chapleau OMNR was proactive in supporting the establishment and operation of a First Nation Task Team. We recognize this initiative as a Best Management Practice as the work of the FNTT appeared to bridge some previous communication gaps and provided for enhanced cross-cultural understanding in the forest management planning process.

An LCC was properly established and was involved in the preparation of the plan. Both OMNR and Tembec were supportive of the LCC. LCC members stated that their input had been respected and was meaningful to the forest management planning process.

We conclude that the LCC had a core of experienced and dedicated members who did an excellent job under challenging circumstances which included a change in the SFL holder, the amalgamation of the Superior and Martel Forests and regular changes in OMNR representatives.

During the audit period two Individual Environmental Assessment requests were submitted to MOE. While we recognize that legitimate concerns can come forward at any time during the development of and/or approval process of a forest management plan we are concerned that an IEA requestor does not necessarily have to participate in the FMP issue resolution process prior to making the request. This circumstance had serious negative social and economic consequences on the Martel Forest. IEA requests of provincial scope that are submitted locally (i.e. during a local forest management planning process) should be dealt with at a higher (provincial) scale to expedite their disposition and to avoid local economic and social hardship.

We provide two recommendations to address these concerns.

Forest Management Planning

The Superior and Martel Forests were originally on the same cycle for the development of forest management plans (i.e. renewal in April 2006). Although the planning process had already commenced for both Forests, Tembec felt that management planning efficiencies would result if one management plan were developed. An aggressive plan production schedule was developed and implemented in order to maintain the supply of wood to the Chapleau mill. The planning team, LCC plan advisors and other support staff are to be congratulated for meeting the plan production schedule. We found that the 2006 FMP planning process was in accordance with FMPM requirements.

Although Tembec staff attempted to develop Resource Stewardship Agreements with remote tourism operators, no RSA's were completed. We question the cost/benefit of the process and provide a suggestion to investigate a more streamlined approach and a modification of timing for consultations.

SFMM and SEIM modeling inputs and assumptions were reasonable and based on the best information available. We did have some concern with the yield curves utilized for some silviculture strategies but note that this concern was addressed following the drafting of the FMP. The requirement to provide a final "netted down" High Potential Cultural Heritage digital layer for the Forest remains outstanding.

Operational planning requirements were fully in compliance with the FMPM.

Plan Implementation

The implementation of the Forest Management Plan during the audit period was in compliance with FMPM requirements. In our opinion Tembec is achieving plan silvicultural objectives. We found that:

- The area renewed is generally in balance with the area harvested.
- AOC's were properly planned, implemented, and monitored.
- There was good regeneration success.
- Wood utilization on inspected harvest areas was good.
- There was a good compliance record on the Forest.
- All water crossings examined met all standards and requirements in effect at the time.
- Harvest and renewal efforts were approved in the AWS and SGRs were appropriate and properly implemented.

However, we are concerned that the OMNR Chapleau District faces serious issues with respect to chronic funding shortages and staff turn-over/vacancies which undermine its ability to collect information, gain and retain field experience, and make decisions based on local knowledge. We are also concerned that the continual changes to forest management guidelines, forest boundaries and reporting standards has critically impaired the ability of the forest manager to assess long-term forest sustainability.

System Support

OMNR and Tembec had effective training programs in place and record keeping systems were generally effective. We were concerned with the high level of staff turnover and number of position vacancies at the OMNR District Office. We believe that this circumstance has negatively affected the OMNR's ability to meet its management obligations.

Monitoring

Tembec produced a Five Year Compliance Strategy that met all requirements. The OMNR had produced comprehensive Annual Compliance Operation Plans. Our review of compliance inspection reports filed by OMNR and the forest industry indicates a trend towards improved compliance over the audit period.

Tembec has an effective system for monitoring its silviculture program, exceptions and updating its forest inventory. We believe that the system is sufficient to provide for a comprehensive assessment of silvicultural effectiveness.

Achievement of the Management Objectives and Forest Sustainability

It is our assessment that management objectives were largely achieved during the audit period.

We have concerns about ongoing changes to boundaries, guidelines and reporting requirements that make it impossible for forest managers to develop baseline data and develop "trend through time" assessments of how the forest is responding to management actions. We believe the inability to produce long term objective data threatens the public confidence in the ability of OMNR and industries to manage sustainably. We do not believe subjective assessments and "best estimates" of non-comparable and incomplete data sets can or should continue much longer.

However, we conclude that the Martel Forest is being managed sustainably on the basis of our;

- assessment of the silvicultural program,
- record reviews,
- field investigations,

- assessment of the achievement of management objectives,
- assessment of forest sustainability criteria.

Contractual Obligations

Two separate SFL licences are currently in effect on the Martel Forest (SFL # 550390 and SFL # 541842). It is our assessment that SFL contractual obligations were largely met during the audit period.

Tembec and OMNR have fully addressed or are making significant progress with respect to addressing the recommendations of the 2002 IFA.

5.0. AUDIT CONCLUSION

Section 2.1 outlines the principles against which the performance of the forest manager is measured. During the audit period Tembec was in compliance with the legislation, regulations, and policies that were in effect at the time of the audit.

We conclude that the Martel Forest is being managed sustainably, and that Tembec has met its contractual obligations in accordance with SFL # 550390 and SFL # 541842. We provide the following recommendation to the Minister of Natural Resources in that regard.

Recommendation # 7:

The Minister of Natural Resources should extend Tembec's Sustainable Forest Licences # 550390 and # 541842 for a further 5 years.

Table 15 provides a summary of the recommendations and suggestions made to Tembec and the OMNR in this audit report.

TABLE 15. SUMMARY OF THE AUDIT RECOMMENDATIONS AND SUGGESTIONS

Principle 1: Commitment
No recommendations or suggestions.
Principle 2: Public Participation
Recommendation # 1: Corporate OMNR should encourage the Ministry of the Environment to explore mechanisms that require participation in the FMP planning process as a pre-requisite to entry into the Individual Environmental Assessment process. **Recommendation # 2:** Corporate OMNR should encourage the Ministry of the Environment to explore mechanisms that would consider Individual Environmental Assessment requests be dealt with at a scale appropriate to the concern (i.e. local vs. provincial). **Best Management Practice** The Chapleau District's First Nation Task Team is a proactive and innovative approach to cross cultural communications in forest management planning. The FNTT was a positive influence in bringing forward aboriginal perspectives in the development of the 2006 FMP.
Principle 3: Forest Management Planning
Suggestion # 1: Corporate OMNR should investigate the need for and feasibility of a more streamlined approach to the RSA process including a modification of the timing for tourism consultations.
Principle 4: Plan Implementation
Recommendation # 3 Corporate OMNR must ensure that a suitable High Potential Cultural Heritage digital layer is available to amend the 2006 Superior-Martel FMP.

Recommendation # 4

The Chapleau District should evaluate and report to Corporate OMNR on the current status of its values database and its effectiveness in meeting OMNR CFSA obligations for forest management. On the basis of the report findings and recommendations, Corporate OMNR should establish and deliver a five-year funding commitment for values collection and maintenance in the Chapleau District.

Recommendation # 5:

OMNR Regional and District staff should review the need, location and types of access restrictions required for access control, investigate the full range of enforcement options and adequately fund the selected options.

Suggestion # 2:

Tembec should ensure that areas treated by slash pile burning are promptly renewed.

Suggestion # 3:

The Chapleau District should re-evaluate and revise (where appropriate) the access restriction requirements of the District Fisheries Management Plan.

Principle 5: Systems Support

Recommendation # 6:

Corporate and local OMNR should conduct a detailed review of Chapleau District staffing and funding issues to determine the reasons for the OMNR's on-going limited field presence on the Forest and implement corrective actions.

Principle 6: Monitoring

No recommendations or suggestions.

Principle 7: Achievement of Management Objectives and Forest Sustainability

No recommendations or suggestions.

Principle 8: Contractual Obligations
No recommendations or suggestions.
Summary of Conclusions and Recommendations
Recommendation # 7: The Minister of Natural Resources should extend Tembec's Sustainable Forest Licences # 550390 and # 541842 for a further 5 years.

Appendix A

Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report.

The Comparison and Trend Analysis of Planned vs. Actual Forest Operations is prepared by the Forest Manager (Tembec) responsible for forest management on the Martel Forest. We included in this report without modification or adjustment.

Comparison and Trend Analysis of Planned vs. Actual Forest Operations For the MARTEL FOREST

Comparison and Trend
Analysis of Planned vs. Actual
Forest Operations
For the MARTEL FOREST

Prepared for the 2007 Independent Forest Audit

Prepared by:
Sarah Sullivan, R.P.F.
Planning Superintendent
Tembec - Chapleau

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1.0 Introduction

This trend analysis compares the planned and actual forest management activities that occurred on the Martel Forest during the period April 1, 2001st to March 31st, 2006. The analysis also includes a summary of planned versus actual forest management activities, which occurred on the forest during the two previous 5-year planning terms (1992-1997 & 1997-2001). In addition, this analysis highlights significant milestones and historical events that have occurred on the forest.

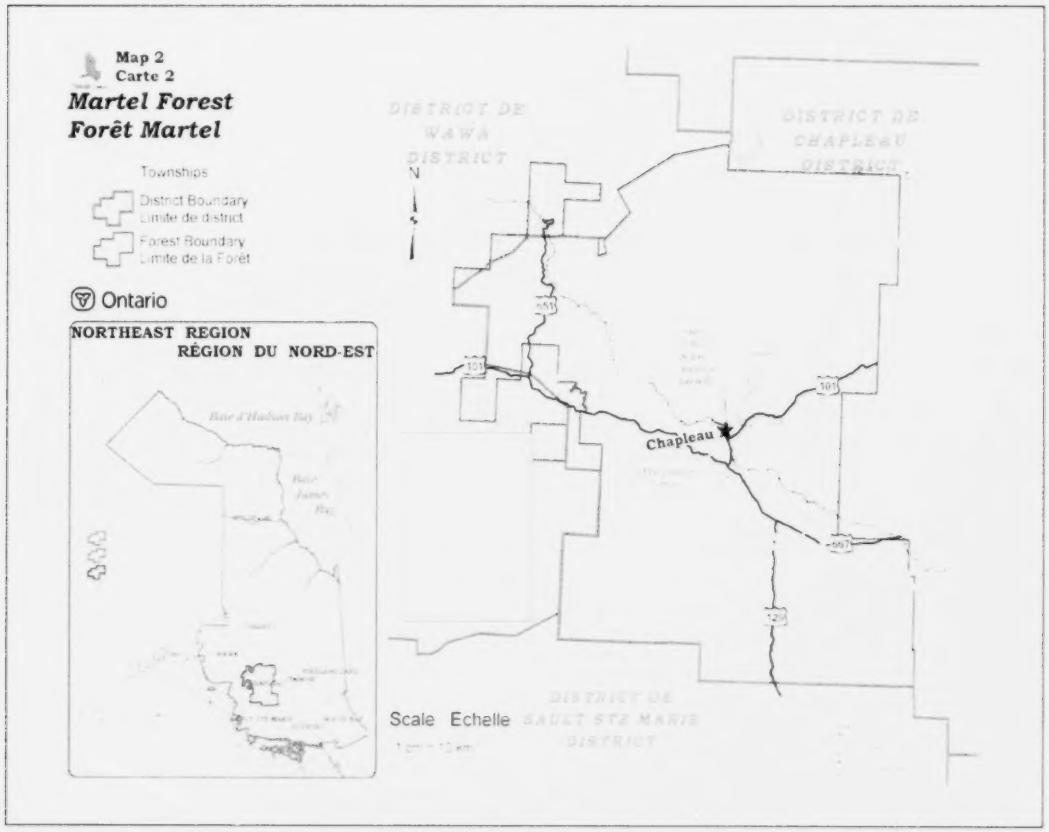
1.1 Martel Forest

The Martel Forest is a new management unit that is made up two Sustainable Forest Licences (SFLs), the Superior Forest (SFL# 550390) and the J.E. Martel Forest (SFL# 541842), which in the past have been managed separately. The Superior portion of the forest had been managed under its own forest management plans, while the J.E. Martel portion of the forest has most recently been managed with the neighbouring Pineland Forest as part of the 2001-2021 Pineland-Martel Forest Management Plan. Prior to 2001, the J.E. Martel portion was managed under its own forest management plans (1987-2007, 1992-2012 and 1997-2017).

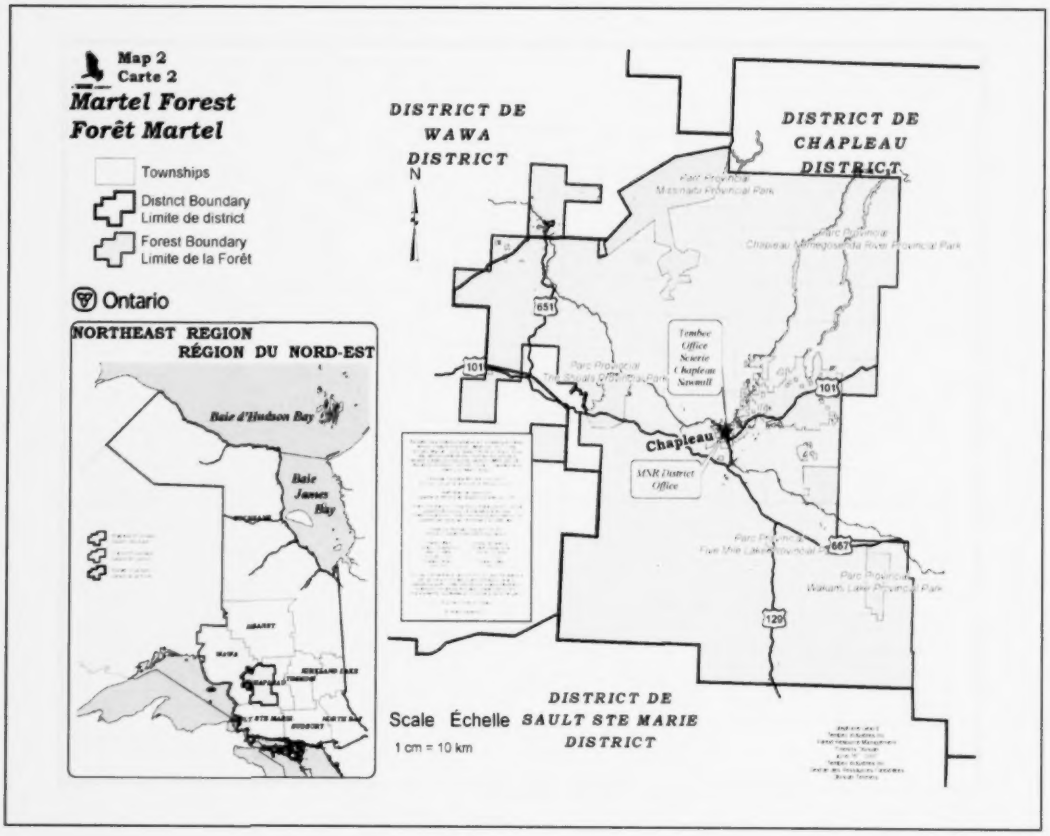
Effective January 1, 2005, Tembec assumed the responsibility for managing the J.E. Martel Forest from Domtar as part of the larger "Fairway Agreement" between the two companies. Prior to the Fairway Agreement, Domtar and Tembec both operated sawmills in Chapleau. The Fairway Agreement resulted in the closure of Domtar's sawmill, thus any spruce, pine and fir (SPF) volume harvested from the J. E. Martel Forest was delivered to the Tembec Chapleau Sawmill. Although the 2006 Forest Management Plan (FMP) for the Superior Forest (as well as the Pineland-Martel Forest) was well underway, Tembec proposed to amalgamate the two management units and write a single FMP. Over the next year the FMP was being developed and the amalgamation plan was being reviewed for the Superior-Martel Forest. On March 23, 2006, the Director of the Forest Management Branch approved the amalgamation of the two management units and the official designation of the new Martel Forest came into effect on April 1, 2006. The transfer of the J.E. Martel SFL to Tembec was approved on January 12, 2007, and the licencing of the amalgamated Martel Forest as one SFL is currently underway.

The Martel Forest, shown on Figure 1, is managed by Tembec Enterprises Inc. and is located within the Chapleau and Wawa Districts of the Northeast Region of the Ontario Ministry of Natural Resources (OMNR). It is administered through the Chapleau District Office.

In addition to the township of Chapleau, the Martel Forest is also home to the communities of Sultan, Devon and Missanabie. There are three First Nations communities on the management unit including the Chapleau Cree First Nation, Brunswick House First Nation and Chapleau Ojibwe First Nation. The Michipicoten First Nation does have a reserve on the Martel Forest; however their community is established in Michipicton, close to Wawa. Also, the Missanabie Cree First Nation is currently negotiating a land claim with the province in West and Stover townships, located on the Martel Forest.



In addition to the township of Chapleau, the Martel Forest is also home to the communities of Sultan, Devon and Missanabie. There are three First Nations communities on the management unit including the Chapleau Cree First Nation, Brunswick House First Nation and Chapleau Ojibwe First Nation. The Michipicoten First Nation does have a reserve on the Martel Forest; however their community is established in Michipicton, close to Wawa. Also, the Missanabie Cree First Nation is currently negotiating a land claim with the province in West and Stover townships, located on the Martel Forest.



As mentioned before, all SPF volume harvested on the Martel Forest is delivered to the Tembec Chapleau Sawmill. The Martel Forest also provides wood products to the following facilities as directed by the Minister:

- Levesque Plywood Limited (Hearst) – poplar veneer
- Longlac Wood Industries Inc (Longlac) – poplar veneer
- Grant Forest Products (Timmins and Englehart) – poplar and birch OSB
- Weyerhaeuser Company Ltd (Wawa) – poplar and birch OSB
- Birchland Veneer Limited (Thessalon)– tolerant hardwood and birch veneer

There was also a volume of red and white pine sawlogs directed to Pineal Lake Lumber, just outside of Chapleau, however the facility closed in 2005. Other mills that traditionally receive wood products from the Martel Forest include:

- St. Mary's Paper (Sault Ste. Marie) – spruce pulp
- Domtar (Espanola) – hardwood and softwood pulp
- Midway Lumber Mills (Thessalon) – white pine and white birch sawlogs
- Devon Mills (near Chapleau) – jack pine sawlogs

Sales of logs to the above facilities are predominantly species or products that; cannot be utilized locally, are small volumes of specialty products (i.e. Devon Mills), or are volumes that are available for open market sales. Any wood waste created at the Chapleau site is sent to Chapleau Cogeneration Inc. to generate electricity. Also, wood chips, a co-product of the lumber manufacturing at the Tembec sawmill, are delivered primarily to the Marathon Pulp mill that maintains the first right of refusal for these products.

On January 20th, 2006, the Superior Forest obtained FSC certification. During the annual surveillance audit in January 2007, the former J.E. Martel Forest was reviewed for inclusion in the certificate. The Tembec Chapleau sawmill received Chain of Custody certification on January 26th, 2006.

2.0 Comparison and Trend Analysis

This report contains information drawn from the Report of Past Forest Operations (RPFO) and the Year 10 Annual Report for the activities that occurred on the Superior Forest during the 1997-2002 and 2001-2006 planning periods.

2.1 Summary of Total Area Under Management

Table 1 provides a summary of the total Crown-Managed landbase under management for past and current plans. This landbase is categorized by the following land types: non-forested, forested, and production forest. Information presented in this table was taken from Tables FMP 1 and 2.1 of the 1997-2002 FMP as well as Tables FMP-1 and 2 from the 2001-2006 and 2006-2011 FMPs.

Because of the joint management of the Pineland and J.E. Martel Forest during the 2001-2006 FMP, it is not possible to separate the Martel portion of the plan during that period. Therefore, the focus for this comparison will be the sum of the Superior Forest and the J.E. Martel Forest information for the 1997 plan with data from the 2006 FMP for the Superior-Martel Forest.
From the table and the chart there are some changes evident in the forest stands by working group, but there are also significant changes in the amount of protection forest, barren and scattered and depleted forest area.

In the 2006 FMP there is over five times the amount of protection forest on the Superior-Martel than there was in the two 1997 FMPs for the same area (18,418 hectares vs. 3,466 hectares). Traditionally, protection forest was made up of islands and areas with site class four. Direction in the 2006 FMP required all type 25 stands (PFR - production forest reserve) be included in protection forest area, unless otherwise deemed operable. Maps of stands were reviewed with respect to geography, contours and adjacent features (i.e. water) to determine whether or not they were operable. Photos of potentially operable areas were then reviewed to verify operability. All operable stands were assigned a modifier code in the inventory were then assigned attributes indicating its availability.

Another notable difference from 1997 to 2006 is the significant decrease in barren and scattered area paired with the increase in depleted area. In the previous FMPs, any recent depletions were included in the barren and scattered (B&S) category. During the development of the 2006 FMP, distinction was made between recent depletions and true barren and scattered areas which represent small, scattered natural depletions (e.g. windthrow patches) identified on the 1992 forest resource inventory (FRI) aerial photographs when the new FRI was prepared by the OMNR and delivered to the Company in 1995. When the B&S is combined with depleted area, there is still an increasing trend. This area represents the lag in the free-to-grow area being incorporated into the inventory.

In 1997, the four largest working groups on the two forests were spruce (white and black spruce), jack pine, poplar and birch, representing 92 percent of the forest stands. In 2006, these four working groups are still the largest and represent 91 percent of the forest stands. From the 1997 plan to the current plan there have been slight increases in the area of jack pine and white birch, while more significant decreases have occurred for spruce and poplar. Increased utilization of poplar in the past few plans may contribute to this decrease in the poplar working group area. Also, poplar and lowland black spruce are generally renewed by natural regeneration. The deficit in these working groups may be a significant part of the depleted stand area that has been extensively renewed (over 41,000 hectares in the 2006 planning inventory), but not yet declared free-to-grow.

Other notable differences include the apparent increase in the Mh working group, coupled with the decrease in the Oh working group. The individual areas for these working groups trend in the opposite direction but if combined as one hardwood group; there is little change over time. This is likely a function of classification methods rather than actual changes in forest composition. Finally, there has been a slight increase in the presence of the balsam fir working group. This appears to be a result of some younger forest coming on-line in the inventory. In 1987 the area of the balsam fir working group was 56,480 hectares on the two forests, but subsequent inventories show a significant decrease in the working group area as a result of the spruce budworm infestations of the 1970s.

2.2 Description of Forest Units

Table 2 describes the forest units that were used for the 1997-2002, 2001-2006 and 2006-2011 planning terms. Information presented in this table was taken from Table FMP-5 from the 1997-2002 FMP (Superior) and Table FMP-8 from the 2001-2006 (Superior) and 2006-2011 FMPs.

Forest unit descriptions for the 2001 and 2006 FMPs differ from those used in the 1997 FMP as a result of changing to a set of Northeast Region standard forest units (SFUs) developed by the OMNR in consultation with forest industry (Note: included in Table 2 for the 1997 FMP is a column used to link the 1997 forest units to the SFUs presented in the 2001 and 2006 FMPs. This link was made based on the FRI parameters presented in both tables using the author's discretion. This link is carried forward to tables summarizing information by forest unit for the 1997 plan). The use of standard forest units was developed and adopted in order to create efficiencies and consistency between management units in terms of forest modeling, determination of yield curves and successional pathways, providing a standard format for reporting, and facilitating the exchange of technical and scientific knowledge. The forest unit descriptions used for the 2006 FMP are similar to the descriptions used in the 2001 FMP with a few changes. Most significant are the refinement of the description of the PW1

forest unit and the addition of the MW3 forest unit. The MW3 forest unit was created by removing stands with a significant white birch component (Bw working group) from the standard MW2 forest unit.

2.3 Summary of Average Planned and Actual Harvest Volumes

Table 3 provides a summary of the annualized planned and actual volumes for the 1997-2002, 2001-2006, and 2006-2011 planning terms. Planned volume levels were taken from Table FMP-18 for 1997-2002 and from Table FMP-23 for 2001-2006 and 2006-2011. Actual volumes were summarized from Table RPFO-4 and 4a for 1997-2001 and Table AR-4 for 2001-2006. For the 1997 FMP, the planned harvest was for the 1997-2002 period but the actual harvest occurred during the 1997-2001 period. This was a result of the acceleration of the 2001-2006 plan. Planned figures were annualized for the 5-year period and actual harvest figures were annualized for the 4-year period in the table for the purpose of comparison.

2.3.1 The 1997-2001 Four-Year Planning Term

During the 1997-2001 four-year planning term, actual utilization was approximately 75 percent of what was planned. Conifer utilization was approximately 83 percent, while hardwood utilization was 57 percent (Note: these values differ somewhat from the 1997-2002 RPFO, because Table RPFO-4 compares the actual versus planned volume which includes both forecast utilized and unutilized volumes; for the purpose of Table 3, only forecast utilized volumes were considered, thus for the 2001 and 2006 FMP, Table FMP 23 and not Table FMP-21 was used). Diminished wood utilization is a largely a result of the decreased harvest level, low merchantable volumes, and poor markets for low-grade hardwoods. Another factor contributing to the decreased utilization is the salvage harvest that took place as a result of the Chapleau Fire 1-1999. Approximately 141,804 m^3 of unplanned salvage volume was utilized following the fire.

2.3.2 The 2001-2006 Five-Year Planning Term

During the 2001-2006 five-year planning term, actual utilization was approximately 79 percent of what was planned. Conifer utilization was 78 percent, while hardwood utilization was 80 percent. The main factor in the shortfall in utilized volume was a shortfall in harvest area. Not all of the FMP blocks were harvested during the five-year period. Some of the areas occurred within modified AOCs that had restrictions that prevented operations from occurring (no roads permitted, horse logging, or modified operations that were cost prohibitive). Other areas had timing restrictions that required a return pass (winter operations, water crossings, tourism restrictions) and subsequent operations did not facilitate returning to complete the block because of markets, timing or proximity to other operations. And finally, some blocks were never operated as a result of the cumulative shortfall in harvest area over the five years. Another significant factor

to note is that the PJ1 harvest could not reach 100 percent of forecast unless commercial thinning took place. No commercial thinning took place during the plan; however 37,500 m^3 of jack pine volume was forecast to come from commercial thinning operations. SPF utilization over the first four years of the plan was relatively consistent to meet the Chapleau Sawmill demand; however there was a slight drop in the utilization of SPF from the Superior Forest in the last year. This may be a result of a disproportionate amount of SPF volume being delivered from the J. E. Martel Forest to meet consumption requirements for Tembec's Chapleau sawmill that started its three-shift configuration in April 2005. There are positive trends in the utilization of poplar and birch volumes, especially for white birch where in year five there was an emphasis on white birch harvest and delivery of all products. In 2003-2004 Grant Forest Products had an overlapping licence on the Superior Forest to concentrate on poplar and birch OSB deliveries, to make up for delivery shortfalls from the 2001-2003 period. There has been a negative trend in the utilization of red and white pine. Since Pineal Lake Lumber did not operate on the license during the 2001-2006 FMP, red and white pine harvest volumes have been incidental (i.e. harvested from road line). Marketing of incidental volumes have proved difficult, thus operations have worked to avoid harvesting these species when encountered.

2.4 Summary of Planned and Actual Harvest Area

Table 4 compares the planned versus actual harvest area, on an annualized basis, for the 1997-2002, 2001-2006, and 2006-2011 five-year planning terms. Data on planned harvest levels was obtained from Table FMP-15 for the 1997 FMP and Table FMP-18 for the 2001 and 2006 FMPs. Information on actual harvest area was obtained from Table RPFO-2, and Tables AR-1 and 6. For the 1997 FMP, the planned harvest was for the 1997-2002 period but the actual harvest occurred during the 1997-2001 period. This was a result of the acceleration of the 2001-2006 plan. Planned figures were annualized for the 5-year period and actual harvest figures were annualized for the 4-year period in the table for the purpose of comparison.

2.4.1 The 1997-2001 Four-Year Planning Term

During the 1997-2001 four-year planning term the actual harvest area represented 64 percent of what was planned. The factors contributing to the differences between the planned depletion area and actual depletion area include:

Increased bypass – Bypass represented about 16 percent of the total area allocated for harvest. Most of the bypass occurred in the BF1, OC1, OH1 and PW2 forest units. In the BF1 forest unit, bypass occurred largely due to low merchantable volumes resulting from damage by spruce budworm. In the OC1 and OH1 forest units, area was bypassed where there were concentrations of

low-grade white birch, soft maple, cedar and larch, for which no markets existed during the term of the plan. For the PW2 forest unit, there was a red/white pine retention target of five trees per hectare. In some areas the retention target could not be met if harvesting were to take place, so entire stands were bypassed.

Poor markets for low-grade hardwood - The actual harvest area within the BW1, MH1, MW1 and OH1 forest units was much lower than planned due to the lack of markets for low-grade white birch and tolerant hardwood volumes. Stands were operated where there was a significant conifer component, aspen component or sufficient volumes of higher-grade white birch veneer or sawlog volumes.

Chapleau Fire 1999-1 - As a result of the fire, harvesting efforts had to be directed toward a salvage harvest, and away from the regular harvest that was allocated as part of the plan.

When bypass is considered, approximately 84 percent of the forecast area was depleted. In addition to harvest and bypass, a significant amount of natural depletion occurred, including both fire and windthrow. Isolated wind events resulted in 136 hectares of natural depletion over the four-year term, while wildfires represented 8,395 hectares of depletion. A large forest fire (Chapleau Fire 1999-1) occurred on the Superior Forest in April and May of 1999. This fire was responsible for the depletion of 8,177 hectares of productive, managed crown forest in Lackner, McNaught, and Halsey townships.

2.4.2 The 2001-2006 Five-Year Planning Term

During the 2001-2006 five-year planning term the actual harvest area represented 64 percent of what was planned. The factors contributing to the differences between the planned depletion area and actual depletion area include:

- Opening size restrictions in place during the 2001-2002 operating year resulting in decreased production from operating in several small blocks.
- Harvest areas within modified AOCs that had restrictions that prevented operations from occurring (no roads permitted, horse logging, or modified operations that were cost prohibitive).
- Harvest areas within timing restrictions that required a return pass (winter operations, water crossings, tourism restrictions) and subsequent operations did not facilitate returning to complete the block because of markets, timing or proximity to other operations.
- Reduced mill consumption, including a six week mill shut down
- Bypass (leaving unharvested area) as a result of operability, accessibility, merchantability and markets accounted for 19 percent.

- Diminished markets for low grade hardwood (white birch, specifically).
- The shortfall in PRW and PW1 forest units is a result of Pineal Lake Lumber closing their mill, and not having another secure market available for red and white pine.
- The shortfall for OH1 and SF1 forest units is because there was no market for the low-grade hardwood found in the OH1 forest unit and there are higher concentrations of cedar in many of the SF1 stands that cannot be successfully marketed.

- 1,000 hectares of PJ1 included in the forecast harvest area that were not commercially thinned.

When bypass is considered, approximately 83 percent of the forecast area was depleted. In addition to harvest and bypass, a small amount of natural depletion took place on the forest. Over the five-year period there were 22 hectares of natural depletion (~4 hectares annualized), including a six-hectare fire in an immature jack pine stand on the Sultan Highway.

2.5 Summary of Managed Productive Forest by Forest Unit

Table 5 provides a summary by forest unit of the managed Crown productive forest for the 1997-2002, 2001-2006 and 2006-2011 five-year planning terms. As indicated in a footnote to the table, the 1997 FMP followed phase-in guidelines for the new 1996 FMPM; therefore Table FMP-9 did not exist. The source of information for this table for the 1997 FMP was Table FMP-6. FMP-6 did not contain information regarding the amount of unavailable area, nor the volumes associated with all forest areas, nor were there other tables in the 1997 FMP that did so. The source of information for the 2001 and 2006 FMPs was Table FMP-9.

Unfortunately, because of the nature of the three plans being reviewed, no significant trends can be derived from the comparison of the three tables. During the first two plans the landbase is the same, but there is not a one-to-one relationship between the forest units used in planning, thus no forest unit level comparisons can be made. One can consider the change in productive forest between the two plans. The amount of available productive forest has remained stable (~0.5%) through the 1997-2002 to 2001-2006 terms (from 695,532 hectares in 1997 to 691,847 hectares in 2001). Some of this may be accounted for (~15%) by the increase in protection forest between the two plans.

In the 2001 and 2006 FMP a one-to-one relationship between the forests units can be made, however, the increase in landbase with the addition of the J.E. Martel Forest makes any comparison irrelevant. However, during the early development of the 2006 FMP, prior to the amalgamation of the two forests,

FMP-9 was generated for the 2006 Superior Forest landbase only. This table showed that in 2006, there was 690,315 hectares of managed crown forest area available for timber production on the Superior Forest. The change in the managed crown forest area available for timber production is 1,532 hectares, which represents a 0.22 percent decrease. This is a relatively small change and is likely a result of the accumulation of no harvest reserve areas (i.e. riparian reserves, habitat reserves) being formed and losses due to the construction of future roads and landings and finalizing the Ontario Living Legacy withdrawals in the 2006 inventory. This change compares to a 0.53 percent decrease in the managed crown area available for timber production between the beginning of the 1997 plan and the beginning of the 2001 plan.

2.6 Summary of Renewal, Tending and Protection Operations

Table 6 provides a comparison of renewal, tending, and protection operations for the 1997-2002, 2001-2006, and 2006-2011 five-year planning terms. The sources of information for planned areas are Table FMP-20 for the 1997 FMP and Table FMP-25 for the 2001 and 2006 FMPs. The sources of information for actual areas are Table RPFO-7 (1997 FMP) and Table AR-7 (2001 FMP). There is currently no annual report information available for the 2006 FMP.

2.6.1 The 1997-2001 Four-Year Planning Term

The total planned area for renewal and tending in the 1997-2002 FMP was 83,752 hectares. The actual area treated over the four years was 65,029 hectares, approximately 78 percent of the area planned (Note: Since the plan was renewed early, actuals should be compared to a target of 80 percent, as opposed to 100 percent).
For renewal there were 5,689 hectares of natural regeneration, 17,648 hectares of artificial regeneration, and 18,734 hectares of site preparation.

For natural regeneration, the area represents 23 percent of area that was planned, while artificial regeneration represents 104 percent of the area that was planned. The combined areas represent 56 percent of the total planned regeneration. The overall shortfall in regeneration efforts is due to the significant underachievement in natural regeneration reporting. During the term of the plan there was an emphasis on reporting artificial regeneration and processes to report natural regeneration were not in place. Efforts in reporting natural regeneration from CLAAG (69 percent of plan) were almost met; however there was little success in reporting natural regeneration from clearcut, with only 13 percent of the planned area reported. Some of the reasons for the shortfall in natural regeneration include; less area than planned was harvested, the time lag in reporting natural regeneration activities until adjacent artificial regeneration areas have been completed and forest fires that occurred in the later nineties

burned several regenerating areas. Additionally, almost 2000 hectares more area than planned was artificially regenerated.

Because of the Chapleau Fire 1999-1, other renewal activities such as artificial regeneration and site preparation were well above plan. The over-achievement in artificial regeneration (104 percent) is because of planting. Aerial seeding was only 51 percent of the five-year target; however, planting reached almost 107 percent of plan. The amount of area site prepared was 128 percent of plan. As a result of the fire the 2000-2001 operating year saw one of the largest silviculture programs in the history of the Superior Forest. For example, over 2000 hectares of chemical site preparation in June was followed by the planting of 5.1 million seedlings in August, in addition to the Company's regular silviculture program.

The amount of area that was tended on the Superior Forest was slightly in excess of target at 84 percent of the plan. No pre-commercial thinning took place (645 hectares planned) because it was felt that no reasonable candidate areas were available on the forest. However, there were 110.3 hectares commercially thinned in Mageau Township as part of a commercial thinning trial conducted by the Company in 1998. No protection was forecast in the 1997-2002 plan, nor did any protection activities take place.

2.6.2 The 2001-2006 Five-Year Planning Term

The total planned area for renewal and tending in the 2001-2006 FMP was 82,382 hectares. The actual area treated over the five years was 54,764 hectares, approximately 66 percent of the area planned. When discussing success in meeting renewal targets it will be presented in the context of the actual area depleted during the 2001 FMP. For example, since only 64 percent of the area was depleted, it would be unreasonable to treat 100 percent of the area planned for silviculture, as forecast silviculture treatments are based on the total forecast area being harvested.

During the 2001 FMP a total of 16,387 hectares have been declared for natural regeneration. This represents 101 percent of the FMP forecasted target. When reviewing the actual area naturally regenerated against the adjusted FMP target to reflect the actual harvest (64 percent of the FMP area), 156 percent of the adjusted target was met. The overachievement in natural regeneration reporting is a result of reporting the shortfall in natural regeneration from the previous plan.

From 2001-2006 a total of 15,019 hectares have been declared for artificial regeneration. The area artificially regenerated by planting was 11,667 hectares, with 3,352 hectares treated by aerial seeding. The percent of area treated by planting is only 62 percent of what was forecast in the FMP after five years. Again, when compared to an adjusted target based on the actual harvest area, the amount of planted area would be at 96 percent of the adjusted target. The

area seeded currently is at 109 percent of the FMP forecast. This represents 197 percent of the adjusted FMP forecast. The combined artificial regeneration areas (plant and seed) with the forecast adjusted to reflect the actual area harvested would indicate that 109 percent of the forecast area has been treated.

The amount of area treated by site preparation for the 2001-2006 FMP is 9,156 hectares. The numbers in Table 6 indicate that mechanical site preparation is currently at 69 percent of the area forecast in the FMP. However, when compared against the adjusted target, the percent of area mechanically site prepared would be 108 percent.

The total area chemically site prepared in the 2001-2006 planning period was 81 hectares. Areas that have been chemically site prepared are at 1.8 percent of the FMP forecast and only 2.8 percent of the adjusted forecast. Many areas have not been chemically site prepared prior to planting, rather the practice has been follow-up with a chemical tending treatment on the site after planting.

The total area chemically tended with Glyphosate herbicide during the 2001-2006 FMP was 14,978 hectares. All areas were treated using rotary wing aircraft, fixed wing or ground tending with backpack sprayers. The area forecast for tending in the FMP was 25,465 hectares. The actual area where aerial chemical tending occurred is 14,448 hectares, or 59 percent of the FMP forecast. Ground tending took place on 530 hectares, or 62 percent of the FMP forecast. The achievement for aerial tending and ground spray, when compared with the adjusted target would be 92 percent and 96 percent, respectively.

The total amount of area pre-commercially thinned in the 2001-2006 FMP was 686 hectares. The completion of the pre-commercial thinning program was in part due to the Forestry Futures Trust Fund in providing financial assistance. As a result the pre-commercial thinning target was greatly exceeded for the 2001-2006 FMP. The total of 686 hectares of pre-commercially thinned area represents a 137 percent of the FMP target (214 percent of the adjusted target).

No protection was forecast in the 2001-2006 plan, nor did any protection activities take place.

When the entire silviculture program is compared to the adjusted target (64 percent of 82,382 hectares), the level of achievement is approximately 104 percent of plan.

2.7 Summary of Harvest Area Successfully Regenerated

Table 7 provides a summary of areas harvested during the 1992-1997 five-year term that were surveyed for regeneration success and declared Free-to-Grow during the 1997 and 2001 FMP terms. The sources of information for harvest

areas are the 1992 RPFO (Table RPFO-1), successive annual reports (Table AR-7 and AR-9; 1996 FMPM) as well as digital records of survey information and forest resource inventory information.

Free-to-grow (FTG) assessments are normally conducted on areas that have had a minimum of five growing seasons, post treatment, and are expected to have achieved the minimum stocking standards as specified in the Silviculture Ground Rules (SGRs). Survey areas that meet the minimum criteria for acceptable species, stocking and height, are deemed to be successfully regenerated and are updated in the inventory as free-to-grow.

A total of 28,676 hectares were depleted during the 1992-1997 five-year planning term. Of this, 26,192 hectares were surveyed and 24,688 hectares were declared FTG (93.4 percent). Of the areas surveyed, there is a high level of FTG success. Only 1,505 hectares of surveyed area were deemed not sufficiently regenerated (NSR). Of this area, 73% has adequate stocking, however more time is needed to meet the full height requirements. Nineteen percent of the NSR area requires some tending to meet FTG standards, while the remaining area requires both a tending treatment and stocking enhancement (i.e. fill plant). There is just over 2,100 hectares that has not yet been surveyed. The majority of this area consists of extensively renewed lowland black spruce stands that are generally not surveyed until ten years following harvest, these stands will likely be surveyed in the next couple of years.

It was noted in the last Independent Forest Audit that areas were being surveyed before the FTG ages as specified in the SGRs, which resulted in negatively skewed reports of renewal success. In recent FTG surveys, only areas meeting the regeneration standards FTG age, as per the SGRs, were targeted for survey and recorded.

3.0 Conclusion

This trend analysis shows that plan targets and objectives were largely met during last two plans. For a more detailed review of the implementation of the 1997 and 2001 FMPs, the 1997 RPFO and 10-year Annual Report (2005) provide detailed discussion of all aspects of the Forest Management Plans. In the preparation of the 2006 FMP and implementation of the first year of operations on the new "Martel Forest", Tembec Forest Resource Management is moving forward to meet or exceed obligations and commitments, in an innovative and positive manner. New and ongoing initiatives include maintaining Forest Stewardship Council (FSC) certification, continued support and adherence to the OFIA Code of Forest Practices, and the Tembec's Forever Green® Environmental Management Program Guiding Principles. Tembec Forest Resource Management's continued commitment to working with the community

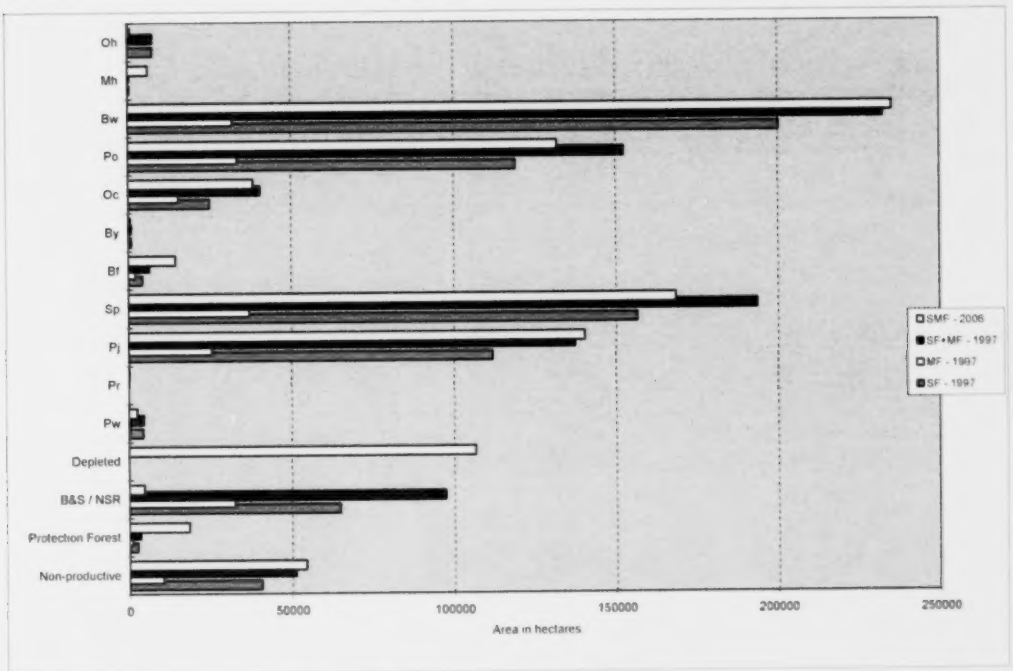
can be seen through involvement in the Local Citizens Committee (LCC), its relationships with various forest stakeholders as well as the general public.

4.0 Tables

2007 Independent Forest Audit
Table 1 - Summary of Total Area Under Management
MU: Superior-Martel Forest

Past and Current Plans - Crown Managed

Land Type	Plan Term	SF - 1997	MF - 1997	SF+MF - 1997	SF - 2001	PMF - 2001	Current SMF - 2006
Non-Forested							
Other Land		4.877	1.597	6.474	4.910	4.374	6.994
Forested							
Non-productive		40.657	10.485	51.142	39.002	32.285	54.352
Productive							
Protection		2.578	888	3.466	3.147	2.132	15.418
Production Forest							
	B&S / NSR	64.891	32.394	97.285	12.192	15.499	4.625
	Depleted	-	-	-	56.200	-	106.552
	Forest Stands by Working Group						
	Pw	4.274	223	4.497	3.339	1.367	2.578
	Pr	64		64	102	-	86
	Pj	111.832	25.464	137.296	112.059	70.645	140.395
	Sp	156.593	37.041	193.634	158.471	150.987	188.527
	Bf	4.309	2.129	6.438	5.707	6.806	14.427
	By	929		929	859	676	671
	Oc	25.013	15.466	40.479	26.110	45.604	38.369
	Po	119.059	33.465	152.524	119.929	110.570	131.894
	Bw	200.408	32.048	232.456	199.265	82.175	235.188
	Mh	477		477	6.437	42	6.188
	Oh	7.683	43	7.726	1.143	486	703
Total Production Forest		695.532	178.273	873.805	701.813	484.837	850.201
Total Forested Land		738.767	189.646	928.413	743.962	519.254	922.971



Source: 1997-2002 FMP; Tables FMP-1 and FMP-2.1
2001-2006 and 2006-2001FMPs; Tables FMP-1 and FMP-2

2007 Independent Forest Audit
Table 2 - Description of Forest Units

Superior Forest SFL 503000
Plan Term 1997 to 2002

Forest Unit	SFU 2001 FMP	Forest Type	Main Working Group	Ecosite Type(s)	Silvicultural System	FRI Parameters and Criteria	Additional Information
PJ1	PJ1	conifer	Pj	2a, 2b	Clearcut	Pj>=70% Species Composition	
SP1	SB1	conifer	Sb, Sw	8, 9, 11, 12	CLAAG	Sb, Sw or Sall >=70% Species Compositon, Site Class X, 1 or 2	Fresh or moist sites
SP3	SB1	conifer	Sb, Sw	11, 12, 14	CLAAG	Sb, Sw or Sall >=70% Species Compositon, Site Class 3	Typically wet poorly drained lowland sites
PO1	PO1	intolerant hardwood	Po	3a, 3b, 6a, 6b, 6c, 7a, 7b, 10	Clearcut	Po>=70% Species Composition	
BW1	BW1	intolerant hardwood	Bw	6a, 6b, 6c	Clearcut	Bw>=70% Species Compositon	
BF1	SF1	conifer	Bf	6a, 6b, 6c, 9	Clearcut	Bf>=40% Species Compositon	
PWR	PW1	conifer	Pw, Pr		Shelterwood or clearcut with seed tree	Pw+Pr>=60% Species Compostion and stocking >=60%	
PW2	PRW	conifer	Pw, Pr		Clearcut or clearcut with seed tree	Pw+Pr>=30% Species Compostion (includes Pw+Pr>=60% Species Composition and stocking >=60%)	
OC1	LC1	conifer	Ce, La	12, 13, 14	CLAAG	Ce, La Working Group or Ce+La>=30% Specie Compostion	
OH1	OH1	tolerant and intolerant hardwoods	Mh, Ms, By	15, 16	Clearcut or selection cut	Mh, Ms, Mail, By, Ab Working Group	
MC1	SP1	conifer	Sb, Pj, Sw, Bf	4, 5a, 5b, 9, 13	Clearcut	Sb+Sw+Sp+Pj+Bf+Pw+Pr+Ps>=70% Species Composition	
MH1	OH1	intolerant hardwood	Po, Bw	3a, 3b, 6a, 6b, 6c	N/A	Sb+La>=0.7 and Pw=0 and site class="4"	
MW1	MW1	conifer and hardwoods	Sb, Pj, Po, Bw	4, 5a, 5b, 9, 13, 3a, 3b, 6a, 6b, 6c	Clearcut	60:40 to 40:60 ratio Conifer to Hardwood	

Note:
A stand is placed into the first forest unit for which it satifieds the FRI parameters and definitions, in the order they are presented here.

Source: 1997-2002 FMP, Table FMP-5

2007 Independent Forest Audit
Table 2 - Description of Forest Units

Superior Forest SFL 503000
Plan Term 2001 to 2021

Forest Unit		Forest Type	Main Working Group	Ecosite Type(s)	Silvicultural System	FRI Parameters and Criteria	Average Species Composition	Average Stocking	Average Site Class
Code	Name								
PW1	White & Red Pine Shelterwood	conifer	White Pine	18,19,20,21	Shelterwood (Uniform)	Pr>=0.7 or Pw+Pr+Sw+He>=0.4 and Pw>=0.3 or Pw+Pr>=0.4 and BA(Pw+Pr+Sw)>12 m2/ha	Pw7 Bw2 Sw1	86	2.0
PRW	White & Red Pine Seedtree	conifer	White Pine	18,19,20,21	Clearcut (with Seedtrees or Standards)	Pr>=0.7 or Pw+Pr+Sw+He>=0.4 and Pw>=0.3 or Pw+Pr>=0.4 and BA(Pw+Pr+Sw)<=12 m2/ha	Pw4 Bw3 Sw1 Bf1 Po1	70	1.8
OH1	Tolerant-Lowland Hardwood	tolerant/ lowland hardwood	Hard Maple	10,15,16,17	Clearcut (Two Pass)	LH >=0.3 or LH+Mh+UH>=0.3	Mh3 Bw3 Uh1 Lh1 Sw1 Bf1	88	2.1
SBOG	Spruce Bog	conifer	Black Spruce	14	N/A	Sb+La>=0.7 and Pw=0 and site class="4"	Sb7 La3	57	4.0
SB1	Black Spruce Lowland	conifer	Black Spruce	8,11	Clearcut (CLAAG)	Sb>=0.8 and Mh+UH+Pr=0 and Pw+Pj<=0.1	Sb9 La1	69	1.6
PJ1	Jack Pine	conifer	Jack Pine	2	Clearcut	Pj>=0.7 and Po+Bw+UH+Mh+LH<=0.2	Pj8 Sb1 Po1	99	1.5
LC1	Lowland Conifer	conifer	Black Spruce	12,13p,13r	Clearcut (CLAAG)	Sb+Ce+La>=0.8 and Mh+UH+Pr=0 and Pw+Pj<=0.1	Sb5 Ce3 La1 Bf1	69	1.9
PJ2	Pine-Spruce	conifer	Jack Pine	4,5f,5m	Clearcut	(Pj+Sb+Pr>=0.7 or (Pj>=0.5 and Pj+Sb+Bf+Sw+He+Pw+Pr+Ce+La>=0.7 and Bf+Sw+He+Pw+Ce+La<=0.2)) and Pj>=Sb	Pj6 Sb2 Po1 Bw1	91	1.5
SP1	Spruce-Pine	conifer	Black Spruce	4,5f,5m	Clearcut	Sb+Sw+Bf+Ce+La+Pw+Pj+Pr+He>=0.7 and (Bf+Ce+Pw+La+Sw+He<=0.2 or Pj>=0.3)	Sb6 Pj1 Bw1 Po1 Bf1	66	1.3
SF1	Spruce-Fir	conifer	Black Spruce	9p,9r,6m	Clearcut (CLAAG)	Sb+Sw+Bf+Ce+La+Pw+Pj+Pr+He>=0.7	Sb3 Bf2 Ce2 Bw2 Sw1	66	1.5
PO1	Poplar	intolerant hardwood	Poplar	7f,7m,7c,10	Clearcut	Po+Bw+Mh+UH+LH>=0.7 and Po>=0.5	Po6 Bw2 Sb1 Bf1	83	2.1
BW1	Birch-Poplar	intolerant hardwood	White Birch	3,7m	Clearcut (Two Pass)	Po+Bw+Mh+UH+LH>=0.7	Bw5 Po2 Sw1 Bf1 Sb1	79	2.2
MW1	Jack Pine Mixed	mixedwood	Poplar	3,6c	Clearcut	60:40 to 40:60 ratio conifer to hardwood and Pj+Pr>=0.2	Pj3 Po3 Bw2 Sb1 Bf1	89	1.8
MW2	Spruce-Fir Mixed	mixedwood	White Birch	6f,6m,3	Clearcut	60:40 to 40:60 ratio conifer to hardwood and Pj+Pr<0.2	Bw3 Po2 Sb2 Bf1 Sw1 Ce1	67	2.1

Source: 2001-2006 FMP; Table FMP-8

2007 Independent Forest Audit
Table 2 - Description of Forest Units

Superior-Martel Forest
Plan Term 2006 to 2026

Forest Unit		Forest Type	Main Working Group	Ecosite Type(s)	Silvicultural System	FRI Parameters and Criteria	Average Species Composition	Average Stocking
Code	Name							
PW1	White & Red Pine Shelterwood	conifer	White Pine	18,19,20,21	Shelterwood (Uniform)	Pw>=5 and stocking>=0.6 and Pw>Pr and Bw+Po<=0.4 or Modifier = SHELTER (BA(Pw+Pr+Sw)>12m2/ha)	Pw5 Bw2 Sw1 Po1 Pr1	79
PRW	White & Red Pine Seedtree	conifer	White Pine	18,19,20,21	Clearcut (with Seedtrees or Standards)	Pr>=0.7 or Pw+Pr+Sw+He>=0.4 and Pw>=0.3 or Pw+Pr>=0.4	Pw4 Bw3 Sw1 Bf1 Po1	68
OH1	Tolerant-Lowland Hardwood	tolerant/ lowland hardwood	Hard Maple	15,16,17	Shelterwood (Uniform)	Ab+Pb+E+Ms+Yb>=0.3 or Ab+Pb+E+Ms+Yb+Mh>=0.3	Mh3 Bw3 Sw1 Bf1 Po1 LH1	89
SBOG	Spruce Bog	conifer	Black Spruce	14	N/A	Sb+La>=0.7 and Pw=0 and site class="4"	Sb7 La3	58
SB1	Black Spruce Lowland	conifer	Black Spruce	8,11,12,13p	Clearcut	Sb>=0.8 and Mh+Pr=0 and Pw+Pj<=0.1	Sb9 La1	69
PJ1	Jack Pine	conifer	Jack Pine	2,4	Clearcut	Pj>=0.7 and Po+Bw+Yb+Pb+Mh+Ab+E<=0.2	Pj8 Sb1 Po1	96
LC1	Lowland Conifer	conifer	Black Spruce	8,9p,12,13p,13r	Clearcut	Sb+Ce+La>=0.8 and Mh+Pr=0 and Pw+Pj<=0.1	Sb5 Ce3 La2	67
PJ2	Pine-Spruce	conifer	Jack Pine	4,5m	Clearcut	(Pj+Sb+Pr>=0.7 or (Pj>=0.5 and Pj+Sb+Bf+Sw+He+Pw+Pr+Ce+La>=0.7 and Bf+Sw+He+Pw+Ce+La<=0.2)) and Pj>=Sb	Pj6 Sb2 Po1 Bw1	88
SP1	Spruce-Pine	conifer	Black Spruce	4,5f,5m	Clearcut	Sb+Sw+Bf+Ce+La+Pw+Pj+Pr+He>=0.7 and (Bf+Ce+Pw+La+Sw+He<=0.2 or Pj>=0.3)	Sb6 Pj1 Bw1 Po1 Bf1	67
SF1	Spruce-Fir	conifer	Black Spruce	9p,9r	Clearcut	Sb+Sw+Bf+Ce+La+Pw+Pj+Pr+He>=0.7	Sb3 Bf2 Ce2 Bw1 Sw1 Po1	65
PO1	Poplar	intolerant hardwood	Poplar	7f,7m,7c,10	Clearcut	Po+Bw+Mh+Yb+Ab+Pb+E+Ms>=0.7 and Po>=0.5	Po6 Bw2 Sb1 Bf1	82
BW1	Birch-Poplar	intolerant hardwood	White Birch	3,7m,7c	Clearcut	Po+Bw+Mh+Yb+Ab+Pb+E+Ms>=0.7	Bw5 Po2 Bf1 Sw1 Sb1	79
MW1	Jack Pine Mixed	mixedwood	Poplar	3,6c	Clearcut	Pj+Pr>=0.2 (generally a 60:40 to 40:60 ratio conifer to hardwood)	Pj4 Po3 Bw2 Sb1	87
MW2	Spruce Poplar Mixed	mixedwood	Poplar	3,6f,6m	Clearcut	Pj+Pr<0.2 where WG does not equal 36 (generally a 60:40 to 40:60 ratio conifer to hardwood)	Po3 Sb2 Bw2 Bf2 Sw1	65
MW3	Birch Mixed	mixedwood	White Birch	3,6m,7m,7c	Clearcut	Pj+Pr<0.2 where WG does equal 36 (generally a 60:40 to 40:60 ratio conifer to hardwood)	Bw5 Sb1 Bf1 Po1 Sw1 Ce1	68

Note: Following the assignment of forest units using the above selection criteria, the following changes have been made: LC1 and SF1 plantations (TYPE = 13 and 23) have been assigned an SP1 fore SB1 plantations (Not FTG - TYPE = 13 only) have also been assigned an SP1 forest unit. For complete documentation of selection criteria, please see the aml included in Supp Doc 23 - FRI Reference

Source: 2006-2011 FMP; Table FMP-8

2007 Independent Forest Audit
Table 3 - Summary of Planned & Actual Harvest Volumes
MU: Superior-Martel Forest

Average Planned Annual Harvest Volumes

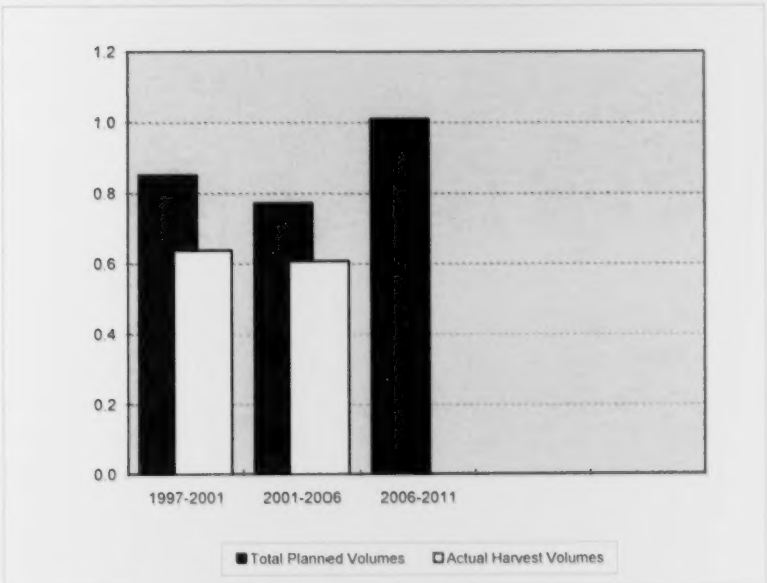
Volumes are Annualized for the indicated 5 year period

	Volume in '000's cubic metres		
	Past Plans		Current
Species	1997-2002	2001-2006	2006-2011
Pwr	18.6	3.6	4.5
Pj	290.5	227.9	279.7
Sp & Bf	277.9	284.5	356.4
Oc	0.0	0.0	1.0
Po	210.0	202.6	258.3
Bw	52.7	51.6	108.9
Tol	0.6	0.3	0.1
Total Planned Volumes	850.3	770.5	1,008.9

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period [1] - Actual volume is annualized over a 4 year period for the 1997 FMP

	Volume in '000's cubic metres		
	Past Plans		Current
Species	1997-2001[1]	2001-2006	2006-2011
Pwr	9.5	0.5	
Pj	224.1	186.7	
Sp & Bf	254.9	214.9	
Oc	0.1	0.8	
Po	147.1	164.1	
Bw	1.6	39.2	
Tol	0.2	0.9	
Total Actual Volumes	637.6	606.3	



Source: Planned: 1997-2002 FMP - Table FMP-18; 2001-2006 and 2006-2011 FMPs - Table FMP-23 (1996 FMPM)
Actual: 1997-2002 FMP Table RPFO 4 and 4a (1996 FMPM); 2001-2006 FMP - Table AR-4 (2004 FMPM)

2007 Independent Forest Audit
Table 4 - Summary of Planned & Actual Depletion Area
MU: Superior-Martel Forest

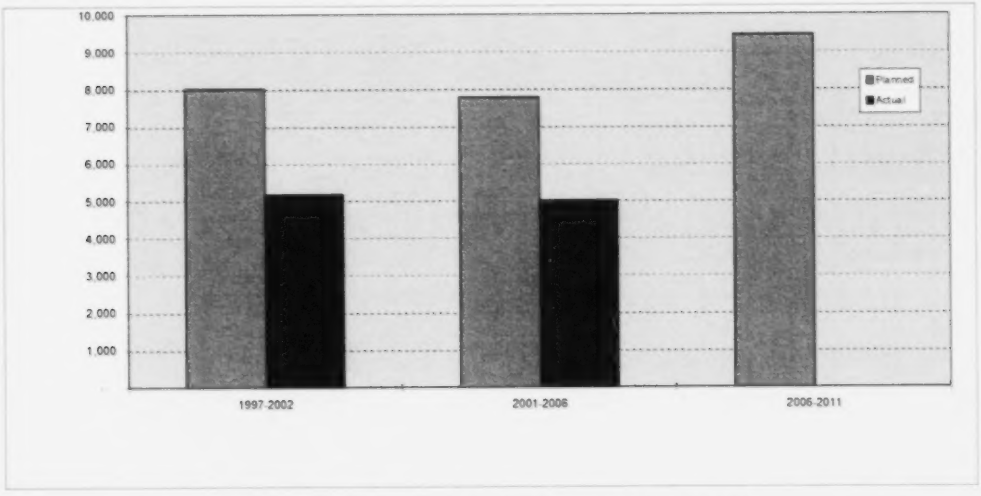
Past and Current Plans

Area is Annualized for the indicated 5 year period

Planned Annual Harvest Area				Actual Depletion Area [1]					
Area in hectares				*Area in hectares*					
	Past Plans		Current	Past Plans				Current	
Plan Term	1997-2002	2001-2006	2006-2011	1997-2002		2001-2006		2006-2011	
Forest Unit				Harvest	Natural	Harvest	Natural	Harvest	Natural
BW1	144	600	444	60	2	341			
LC1	321	600	468	97	110	311			
MW1	2,251	516	348	1,170	474	346			
MW2		1,200	853			692			
MW3			2,028			-			
OH1	1,118	100	487	649	237	7			
PJ1	701	948	964	639	550	700	1		
PJ2		658	597			523			
PO1	250	1,019	1,097	212	109	812			
PRW	66	48	19	52	6	2			
PW1	24	11	6	3	-	-			
SB1	1,469	749	1,363	1,097	193	567			
SF1	27	471	219	13	0	93			
SP1	1,650	843	561	1,173	451	598			
Total Area	8,021	7,763	9,453	5,162	2,133	4,991	4	-	

[1] - Actual area is annualized over a 4 year period for the 1997 FMP

Planned vs. Actual Harvest Area



Source: Planned: 1997-2002 FMP - Table FMP-15, 2001-2006 and 2006-2011 FMPs - Table FMP-18 (1996 FMPM)
Actual: 1997-2002 FMP Table RPFO 1 and 2 (1996 FMPM), 2001-2006 FMP - Table AR-1 and 6 (2004 FMPM)

2007 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
MU: Superior-Martel Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
BW1	B&S						6,624	
	1 to 20						163	
	21 to 40	6					824	
	41 to 60						4,631	
	61 to 80	21					4,384	
	81 to 100						1,899	
	101 to 120						77	
	121 to 140							
	141 to 160							
	161 +							
	Forest Unit Subtotal	27	0	0	0		18,602	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
LC1	B&S						2,493	
	1 to 20						406	
	21 to 40						2,594	
	41 to 60						2,549	
	61 to 80	22					4,284	
	81 to 100	134					10,473	
	101 to 120	254					9,030	
	121 to 140	86					10,266	
	141 to 160						607	
	161 +						16	
	Forest Unit Subtotal	496	0	0	0		42,718	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
MW1	B&S						3,804	
	1 to 20	23					10,966	
	21 to 40	111					31,050	
	41 to 60	410					40,937	
	61 to 80	161					62,592	
	81 to 100	72					38,212	
	101 to 120						2,833	
	121 to 140						624	
	141 to 160							
	161 +						12	
	Forest Unit Subtotal	777	0	0	0		191,030	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
MW2	B&S							
	1 to 20							
	21 to 40							
	41 to 60							
	61 to 80							
	81 to 100							
	101 to 120							
	121 to 140							
	141 to 160							
	161 +							
	Forest Unit Subtotal	0	0	0	0		0	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
OH1	B&S						2,165	
	1 to 20						1,641	
	21 to 40	185					9,255	
	41 to 60	132					31,760	
	61 to 80	55					65,334	
	81 to 100	18					42,164	
	101 to 120						2,482	
	121 to 140						178	
	141 to 160						103	
	161 +						13	
	Forest Unit Subtotal	390	0	0	0		155,095	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
PJ1	B&S						15,864	
	1 to 20						17,511	
	21 to 40						12,799	
	41 to 60						10,053	
	61 to 80						9,695	
	81 to 100						3,553	
	101 to 120						251	
	121 to 140						229	
	141 to 160							
	161 +							
	Forest Unit Subtotal	0	0	0	0		69,955	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
PJ2	B&S							
	1 to 20							
	21 to 40							
	41 to 60							
	61 to 80							
	81 to 100							
	101 to 120							
	121 to 140							
	141 to 160							
	161 +							
	Forest Unit Subtotal	0	0	0	0		0	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
PO1	B&S						7,520	
	1 to 20						1,062	
	21 to 40	21					1,901	
	41 to 60						1,442	
	61 to 80						4,652	
	81 to 100						4,387	
	101 to 120						191	
	121 to 140							
	141 to 160							
	161 +							
	Forest Unit Subtotal	21	0	0	0		21,155	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
PRW	B&S						292	
	1 to 20						185	
	21 to 40						179	
	41 to 60						362	
	61 to 80						541	
	81 to 100						462	
	101 to 120						167	
	121 to 140						881	
	141 to 160						703	
	161 +						1,126	
	Forest Unit Subtotal	0	0	0	0		4,898	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
PW1	B&S							
	1 to 20						9	
	21 to 40						28	
	41 to 60						63	
	61 to 80						25	
	81 to 100						55	
	101 to 120						192	
	121 to 140						402	
	141 to 160						342	
	161 +							
	Forest Unit Subtotal	0	0	0	0		1,116	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SB1	B&S						22,104	
	1 to 20						3,014	
	21 to 40						6,038	
	41 to 60						4,642	
	61 to 81	121					13,483	
	81 to 100	285					20,893	
	101 to 120	115					17,120	
	121 to 140	210					11,282	
	141 to 160	50					606	
	161 +						12	
	Forest Unit Subtotal	781	0	0	0		99,194	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SBOG	B&S							
	1 to 20							
	21 to 40							
	41 to 60							
	61 to 80							
	81 to 100							
	101 to 120							
	121 to 140							
	141 to 160							
	161 +							
	Forest Unit Subtotal	0	0	0	0		0	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SF1	B&S						194	
	1 to 20	8					189	
	21 to 40						1,030	
	41 to 60	23					1,796	
	61 to 80	20					755	
	81 to 100						240	
	101 to 120						47	
	121 to 140	14						
	141 to 160						8	
	161 +							
	Forest Unit Subtotal	65	0	0	0		4,259	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SP1	B&S						3,831	
	1 to 20						12,108	
	21 to 40	1					15,778	
	41 to 60						10,605	
	61 to 80						19,618	
	81 to 100						17,938	
	101 to 120	13					5,602	
	121 to 140	7					1,846	
	141 to 160						93	
	161 +						91	
	Forest Unit Subtotal	21	0	0	0		87,510	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
ALL	B&S	0	0	0	0		64,891	0
	1 to 20	31	0	0	0		47,245	0
	21 to 40	324	0	0	0		81,457	0
	41 to 60	565	0	0	0		108,805	0
	61 to 80	400	0	0	0		185,401	0
	81 to 100	509	0	0	0		140,246	0
	101 to 120	382	0	0	0		37,855	0
	121 to 140	317	0	0	0		25,498	0
	141 to 160	50	0	0	0		2,522	0
	161 +	0	0	0	0		1,612	0
	Total	2,578	0	0	0		695,532	0

Note: Since only the phase in requirements of the 1996 FMPM were used in the development of the 1997 FMP, Table FMP-9 is not available.
The above table is filled out using FMP-6 from the 1997 FMP. No information is provided for unavailable area, nor volumes associated with forest area.

Source: 1997-2002 FMP Table FMP-6

2007 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
MU: Superior-Martel Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
BW1	B&S				0		4,854	
	1 to 20		0	10	20		731	1,434
	21 to 40	92	1,178	27	691		5,049	129,288
	41 to 60	71	3,266	43	3,039		23,983	1,695,144
	61 to 80	17	1,210	244	19,814		35,444	2,878,230
	81 to 100		0	416	41,731		30,891	3,098,818
	101 to 120		0	4	339		2,602	220,800
	121 to 140		0		0		90	4,043
	141 to 160		0					
	161 +		0					
	Forest Unit Subtotal	180	5,654	744	65,635		103,644	8,027,757

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
LC1	B&S				0		425	
	1 to 20		0	12	3		1,369	315
	21 to 40		0	4	23		2,814	16,246
	41 to 60		0	6	89		2,346	34,694
	61 to 80		0	10	528		3,177	167,662
	81 to 100	22	1,126	162	13,029		11,100	892,743
	101 to 120	83	5,511	250	20,654		10,494	866,954
	121 to 140	35	2,352	173	11,865		11,744	805,466
	141 to 160	31	1,860	28	1,725		1,656	102,024
	161 +		0				0	
	Forest Unit Subtotal	171	10,850	645	47,915		45,125	2,886,104

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
MW1	B&S				0		18	
	1 to 20		0	3	8		3,448	8,799
	21 to 40	41	935	21	614		8,483	247,843
	41 to 60	55	3,608	0	0		15,576	1,576,231
	61 to 80	18	1,721	303	35,068		8,757	1,013,500
	81 to 100		0	522	65,452		7,381	925,481
	101 to 120		0	57	5,414		198	18,806
	121 to 140		0	9	457		165	8,383
	141 to 160		0					
	161 +		0	1	35			
	Forest Unit Subtotal	114	6,264	916	107,047		44,026	3,799,043

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
MW2	B&S			0	0		25	
	1 to 20		0	24	42		4,600	8,136
	21 to 40	41	344	65	1,263		20,644	401,116
	41 to 60	359	10,914	138	5,842		35,129	1,487,140
	61 to 80	183	9,516	414	23,973		46,120	2,670,652
	81 to 100	123	8,659	455	36,285		41,112	3,278,545
	101 to 120		0	47	3,797		5,389	435,375
	121 to 140		0	1	67		885	59,613
	141 to 160		0				113	10,220
	161 +		0				3	75
	Forest Unit Subtotal	706	29,433	1,144	71,270		154,020	8,350,872

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
OH1	B&S						199	
	1 to 20		0				0	
	21 to 40		0				8	176
	41 to 60		0	20	1,207		3,473	209,638
	61 to 80		0	12	1,127		7,167	673,084
	81 to 100	38	3,618	1	112		5,602	629,800
	101 to 120		0	5	634		1,034	131,054
	121 to 140		0		0		133	14,576
	141 to 160		0				103	8,381
	161 +		0				0	
	Forest Unit Subtotal	38	3,618	38	3,080		17,719	1,666,709

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PJ1	B&S				0		19,582	
	1 to 20		0	120	73		33,890	20,680
	21 to 40		0	32	1,799		9,535	536,084
	41 to 60		0	16	2,099	Com. Thinning	13,298	1,744,941
	61 to 80		0	278	46,662		7,167	1,202,982
	81 to 100		0	505	86,216		3,268	557,931
	101 to 120		0	77	11,651		176	26,631
	121 to 140		0	82	5,122		62	3,873
	141 to 160		0	0	0		14	554
	161 +		0					
	Forest Unit Subtotal	0	0	1,110	153,624		86,992	4,093,676

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PJ2	B&S				0		35	
	1 to 20		0	7	15		9,202	19,705
	21 to 40	16	506	5	152		5,769	174,982
	41 to 60		0	37	3,924		10,018	1,062,534
	61 to 80		0	378	52,535		5,323	739,798
	81 to 100		0	902	132,793		6,174	908,939
	101 to 120	14	1,730	118	14,254		1,094	132,150
	121 to 140		0	44	2,639		204	12,234
	141 to 160		0	0			0	
	161 +		0	4	72		0	
	Forest Unit Subtotal	30	2,236	1,495	206,383		37,819	3,050,342

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PO1	B&S				0		5,510	
	1 to 20		0	31	88		2,071	5,905
	21 to 40	120	2,784	54	2,598		5,404	259,978
	41 to 60	61	4,026	15	1,332		8,090	718,557
	61 to 80		0	256	29,024		16,296	1,847,585
	81 to 100		0	449	55,418		24,874	3,070,080
	101 to 120		0	26	2,917		2,036	228,403
	121 to 140		0		0		61	3,031
	141 to 160		0					
	161 +		0					
	Forest Unit Subtotal	181	6,810	831	91,378		64,342	6,133,539

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable (ha)	Unavailable m^3	Stage of Management	Available (ha)	Available m^3
PRW	B&S				0		236	
	1 to 20		0	3	1		604	258
	21 to 40		0	0	0		8	252
	41 to 60		0	8	622		147	11,425
	61 to 80		0	8	585		290	21,206
	81 to 100		0	4	565		343	48,439
	101 to 120		0	7	1,014		211	30,569
	121 to 140		0	5	702		666	93,452
	141 to 160		0	61	7,895		797	103,150
	161 +		0	23	3,611		914	143,503
	Forest Unit Subtotal	0	0	119	14,995		4,216	452,254

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable (ha)	Unavailable m^3	Stage of Management	Available (ha)	Available m^3
PW1	B&S					seed cut	4	
	1 to 20		0					
	21 to 40		0					
	41 to 60		0					
	61 to 80		0	2	222	seed cut	6	665
	81 to 100		0		0	seed cut	25	4,224
	101 to 120		0					
	121 to 140		0		0	seed cut	22	3,295
	141 to 160		0		0	seed cut	70	17,138
	161 +		0		0	seed cut	39	7,790
	Forest Unit Subtotal	0	0	2	222		166	33,112

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable (ha)	Unavailable m^3	Stage of Management	Available (ha)	Available m^3
SB1	B&S				0		16,178	
	1 to 20		0	47	8		2,542	435
	21 to 40		0	11	57		2,462	12,762
	41 to 60		0	17	306		2,463	44,309
	61 to 81		0	26	1,787		5,482	376,880
	81 to 100		0	334	33,807		11,743	1,188,606
	101 to 120		0	427	42,899		9,754	979,953
	121 to 140		0	289	28,564		7,115	703,231
	141 to 160		0	51	4,919		877	84,585
	161 +		0		0		21	1,535
	Forest Unit Subtotal	0	0	1,202	112,348		58,637	3,392,296

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable (ha)	Unavailable m^3	Stage of Management	Available (ha)	Available m^3
SBOG	B&S							
	1 to 20							
	21 to 40							
	41 to 60							
	61 to 80	8						
	81 to 100	213						
	101 to 120	917						
	121 to 140	390						
	141 to 160	135						
	161 +	28						
	Forest Unit Subtotal	1,691	0	0	0		0	0

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SF1	B&S				0		541	
	1 to 20		0	7	3		2,672	1,205
	21 to 40		0	7	111		3,821	60,655
	41 to 60	9	248	67	2,730		3,762	153,282
	61 to 80		0	61	4,200		4,182	287,951
	81 to 100		0	138	12,212		6,711	593,888
	101 to 120		0	173	14,779		4,032	344,451
	121 to 140	14	935	92	6,051		1,688	111,022
	141 to 160		0		0		182	10,607
	161 +		0		0		29	1,115
	Forest Unit Subtotal	23	1,184	545	40,087		27,620	1,564,176

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
SP1	B&S				0		28	
	1 to 20		0	4	6		4,540	6,399
	21 to 40		0	25	480		8,866	170,350
	41 to 60		0	18	887		6,021	296,610
	61 to 80		0	163	14,440		8,372	741,648
	81 to 100		0	512	54,550		12,436	1,324,959
	101 to 120	13	1,154	300	28,625		5,174	493,688
	121 to 140		0	110	9,046		2,018	140,415
	141 to 160		0	18	511		66	1,872
	161 +		0	5	870		0	
	Forest Unit Subtotal	13	1,154	1,175	109,413		47,521	3,175,941

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m^3	(ha)	m^3		(ha)	m^3
ALL	B&S	0	0	0	0		47,635	0
	1 to 20	0	0	268	267		65,669	73,271
	21 to 40	310	5,746	251	7,788		72,863	2,009,732
	41 to 60	555	22,062	385	22,078		124,306	9,034,505
	61 to 80	226	12,447	2,155	229,966		147,783	12,621,843
	81 to 100	396	13,403	4,400	532,170		161,660	16,522,453
	101 to 120	1,027	8,396	1,491	146,977		42,194	3,908,834
	121 to 140	439	3,287	825	64,513		24,853	1,962,634
	141 to 160	166	1,860	158	15,049		3,878	338,531
	161 +	28	0	33	4,588		1,006	154,018
	Total	3,147	67,202	9,966	1,023,396		691,847	46,625,821

Source: 2001-2006 FMP Table FMP-9 (1996 FMPM)

2007 Independent Forest Audit
Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
MU: Superior-Martel Forest

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
BOG	B&S							
	1 to 20	5						
	21 to 40	12						
	41 to 60							
	61 to 80	9						
	81 to 100	381						
	101 to 120	414						
	121 to 140	295						
	141 to 160	166						
	161 +	16						
	Forest Unit Subtotal	1,298	0	0	0		0	0

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
BW1	B&S			81	0		758	0
	1 to 20	2	0	310	0		6,633	0
	21 to 40	43	555	473	0		5,028	45,378
	41 to 60	1,477	67,933	1,663	0		19,788	761,343
	61 to 80	955	67,982	2,552	0		29,159	2,091,429
	81 to 100	722	62,985	3,718	0		37,303	3,348,877
	101 to 120	12	1,080	533	0		4,770	422,401
	121 to 140		0	17	0		352	23,684
	141 to 160		0		0		5	166
	161 +		0		0		0	0
	Forest Unit Subtotal	3,212	200,535	9,347	0		103,796	6,693,278

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
LC1	B&S			17	0		146	0
	1 to 20	3	0	565	0		10,759	0
	21 to 40	3	1	359	0		4,126	35,277
	41 to 60		0	310	0		2,966	111,299
	61 to 80		0	393	0		2,582	188,873
	81 to 100	40	2,055	1,597	0		9,458	916,480
	101 to 120	117	7,748	1,814	0		10,967	1,159,478
	121 to 140	24	1,602	2,827	0		16,373	1,740,450
	141 to 160	64	3,834	893	0		6,463	648,231
	161 +		0	38	0		182	17,415
	Forest Unit Subtotal	250	15,241	8,812	0		64,022	4,817,504

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
MW1	B&S				0		0	0
	1 to 20		0	458	0		5,841	11,362
	21 to 40	99	2,254	1,118	0		11,225	270,543
	41 to 60	1,610	105,605	1,769	0		16,407	1,138,586
	61 to 80	576	55,080	1,038	0		6,644	747,322
	81 to 100	434	48,900	1,585	0		7,662	1,043,548
	101 to 120		0	172	0		766	104,821
	121 to 140		0	48	0		136	13,381
	141 to 160		0		0		0	0
	161 +		0		0		0	0
	Forest Unit Subtotal	2,718	211,839	6,188	0		48,680	3,329,564

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
MW2	B&S				0		0	0
	1 to 20		0	468	0		9,035	13,393
	21 to 40	44	372	1,385	0		11,804	251,902
	41 to 60	160	4,872	1,028	0		8,934	556,286
	61 to 80	352	18,281	1,042	0		6,323	588,615
	81 to 100	379	26,707	2,411	0		13,805	1,504,543
	101 to 120	8	596	812	0		5,347	590,047
	121 to 140		0	209	0		2,282	195,481
	141 to 160	14	462	10	0		126	8,571
	161 +		0	0	0		3	173
	Forest Unit Subtotal	958	51,291	7,363	0		57,659	3,709,011

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
MW3	B&S			0	0			0
	1 to 20		0	434	0		7,364	4,742
	21 to 40	8	70	1,047	0		9,753	120,636
	41 to 60	1,193	36,265	2,117	0		24,198	1,004,519
	61 to 80	1,102	57,286	3,477	0		36,930	2,477,451
	81 to 100	717	50,472	3,695	0		31,934	2,643,156
	101 to 120	23	1,778	633	0		5,540	489,166
	121 to 140		0	56	0		815	67,385
	141 to 160		0	7	0		0	0
	161 +		0		0		0	0
	Forest Unit Subtotal	3,043	145,871	11,467	0		116,534	6,807,056

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
OH1	B&S				0		0	0
	1 to 20		0	4	0		858	360
	21 to 40		0		0		8	99
	41 to 60	186	6,547	123	0		1,672	81,015
	61 to 80	240	16,405	239	0		6,474	559,033
	81 to 100	95	9,066	201	0		5,907	645,328
	101 to 120	61	6,646	83	0		1,431	164,700
	121 to 140	23	2,280	15	0		303	32,388
	141 to 160		0	11	0		119	10,694
	161 +		0	10	0		52	3,915
	Forest Unit Subtotal	605	40,943	685	0		16,824	1,497,533

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PJ1	B&S			35	0		84	0
	1 to 20		0	2,694	0		51,507	463,563
	21 to 40	426	17,557	1,185	0		13,470	1,042,578
	41 to 60	89	8,916	1,712	0	Com. Thinning	14,175	2,162,396
	61 to 80	66	8,717	1,077	0		5,201	952,529
	81 to 100		0	828	0		2,459	456,223
	101 to 120		0	139	0		324	39,171
	121 to 140		0	76	0		113	4,435
	141 to 160		0	11	0		22	416
	161 +		0		0		0	0
	Forest Unit Subtotal	581	35,189	7,757	0		87,355	5,121,310

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PJ2	B&S				0		0	0
	1 to 20		0	1,125	0		14,359	57,436
	21 to 40	17	544	893	0		7,586	314,819
	41 to 60	398	31,864	1,219	0		10,026	952,470
	61 to 80	215	24,120	578	0		3,570	478,722
	81 to 100	386	46,605	1,577	0		5,808	867,088
	101 to 120	14	1,746	410	0		1,102	162,839
	121 to 140		0	126	0		270	21,966
	141 to 160		0		0		0	0
	161 +		0		0		0	0
	Forest Unit Subtotal	1,011	104,879	5,927	0		42,721	2,855,340

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PO1	B&S			47	0		559	0
	1 to 20	18	0	535	0		13,247	39,940
	21 to 40	283	6,577	382	0		4,807	167,163
	41 to 60	333	21,980	781	0		9,766	920,885
	61 to 80	331	32,057	1,219	0		7,661	1,104,563
	81 to 100	826	93,805	3,908	0		24,480	4,167,108
	101 to 120	89	9,657	743	0		4,687	833,630
	121 to 140		0	49	0		729	116,790
	141 to 160		0		0		0	0
	161 +		0		0		0	0
	Forest Unit Subtotal	1,881	164,076	7,664	0		65,936	7,350,079

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PRW	B&S			2	0		6	0
	1 to 20		0	69	0		1,669	14,691
	21 to 40		0	0	0		36	1,945
	41 to 60	21	906	46	0		87	9,430
	61 to 80		0	52	0		219	33,594
	81 to 100	23	2,293	12	0		302	56,227
	101 to 120		0	13	0		137	26,617
	121 to 140		0	47	0		392	87,728
	141 to 160	16	1,585	101	0		239	55,507
	161 +		0	36	0		357	83,882
	Forest Unit Subtotal	60	4,784	378	0		3,444	371,622

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
PW1	B&S				0		0	0
	1 to 20		0	3	0		57	24
	21 to 40		0		0		16	916
	41 to 60		0		0		0	0
	61 to 80		0		0		0	0
	81 to 100		0	27	0		52	10,678
	101 to 120		0	3	0		48	11,193
	121 to 140	119	17,098	10	0		103	26,017
	141 to 160		0	48	0		335	88,662
	161 +		0	122	0		769	207,175
	Forest Unit Subtotal	119	17,098	213	0		1,380	344,665

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
SB1	B&S			250	0		2,244	0
	1 to 20		0	851	0		15,654	14,871
	21 to 40		0	344	0		2,992	36,951
	41 to 60	9	174	388	0		2,665	116,461
	61 to 81	14	622	753	0		3,927	294,721
	81 to 100	129	9,108	1,714	0		10,246	1,002,571
	101 to 120	40	3,476	1,865	0		6,491	911,509
	121 to 140		0	1,638	0		7,967	853,956
	141 to 160		0	276	0		1,206	119,386
	161 +		0	16	0		110	9,499
	Forest Unit Subtotal	192	13,380	8,095	0		55,501	3,359,926

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
SF1	B&S			82	0		271	0
	1 to 20		0	437	0		7,436	7,436
	21 to 40		0	641	0		5,394	91,698
	41 to 60		0	532	0		4,278	203,945
	61 to 80		0	758	0		3,457	248,492
	81 to 100	22	1,623	1,194	0		5,019	429,640
	101 to 120	37	3,021	910	0		3,903	350,978
	121 to 140	14	923	781	0		3,138	285,404
	141 to 160		0	101	0		687	57,546
	161 +		0	49	0		277	20,396
	Forest Unit Subtotal	73	5,566	5,486	0		33,861	1,695,535

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
SP1	B&S				0		0	0
	1 to 20	2	0	1,017	0		22,391	0
	21 to 40		0	1,303	0		11,899	142,788
	41 to 60	209	6,843	759	0		6,149	298,227
	61 to 80	157	9,175	1,124	0		6,335	582,820
	81 to 100	318	25,156	2,393	0		9,821	1,172,921
	101 to 120	146	13,002	1,527	0		5,443	692,711
	121 to 140	111	8,249	694	0		2,001	221,662
	141 to 160		0	27	0		222	15,830
	161 +		0	1	0		2	105
	Forest Unit Subtotal	943	62,424	8,845	0		64,263	3,127,064

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	m^3	Unavailable		Stage of Management	Available	
				(ha)	m^3		(ha)	m^3
ALL	B&S		0	514	0		4,074	0
	1 to 20	30	0	8,969	0		166,810	627,818
	21 to 40	937	27,930	9,129	0		88,144	2,522,694
	41 to 60	5,685	291,904	12,445	0		121,111	8,316,862
	61 to 80	4,016	289,724	14,300	0		118,482	10,348,166
	81 to 100	4,453	378,776	24,860	0		164,256	18,264,390
	101 to 120	962	48,750	9,660	0		52,956	5,961,261
	121 to 140	587	30,152	6,592	0		34,974	3,690,726
	141 to 160	260	5,882	1,485	0		9,424	1,005,010
	161 +	16	0	271	0		1,752	342,560
	Total	16,945	1,073,118	88,227	0		761,973	51,079,486

Note: Protection Forest total does not include 1,473 ha of Protection Forest (islands) for which there is no species description, hence no forest unit. FMP-1 shows 868,618 hectares for the productive forest, FMP-9 total is 868,618.

Source: 2006-2011 FMP Table FMP-9 (1996 FMPM)

2007 Independent Forest Audit
Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS
MU: Superior-Martel Forest

	Area Summary of all Forest Units (ha)					
	1997-2002		2001-2006		2006-2011	
	Planned 100%	Actual	Planned	Actual	Planned	Actual
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest						
Total Uneven-Aged Management	0	0	0	0	0	0
Even-Aged Management						
Natural Regeneration						
Natural Depletion		31		4,162		
Clearcut	16,278	2,175	15,929	8,029	23,486	
Partial Cut	3,982	289				
Strip Cut		146				
Seed Tree Cut		56		41		
CLAAG	4,335	2,993	247	4,155	4,833	
Subtotal Natural	24,595	5,689	16,176	16,387	28,319	0
Artificial Regeneration						
Planting	16,110	17,206	18,950	10,566	17,029	
Seeding	860	442	2,662	2,910	1,794	
Scarification						
Subtotal Artificial	16,970	17,648	21,612	13,476	18,823	
Total Even-Aged Management	41,565	23,337	37,788	29,863	47,142	0
Total Regeneration	41,565	23,337	37,788	29,863	47,142	0
Site Preparation						
Mechanical	11,910	12,096	13,204	9,156	12,681	
Chemical	2,763	6,638	4,425	81	2,874	
Prescribed Burn						
Total Site Preparation	14,673	18,734	17,629	9,237	15,555	
Tending						
Cleaning						
manual						
chemical - ground	1,340	538	859	530	892	
- aerial	25,415	22,310	24,606	14,448	22,931	
mechanical						
prescribed burn (low complexity)					33,012	
Spacing, pre-commercial thinning						
even-aged	645	0	500	686	1,000	
uneven-aged						
Commercial Thinning	114	110	1,000		1,000	
Cultivation						
Total Tending	27,514	22,959	26,965	15,664	58,835	
Protection (Insect Pest Control)						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
Total Protection		0		0		

Source: Planned: 1997-2002 FMP - Table FMP-20; 2001-2006 and 2006-2011 FMPs - Table FMP-25 (1996 FMPM)
Actual: 1997-2002 FMP Table RPFO 7(1996 FMPM); 2001-2006 FMP - Table AR-7

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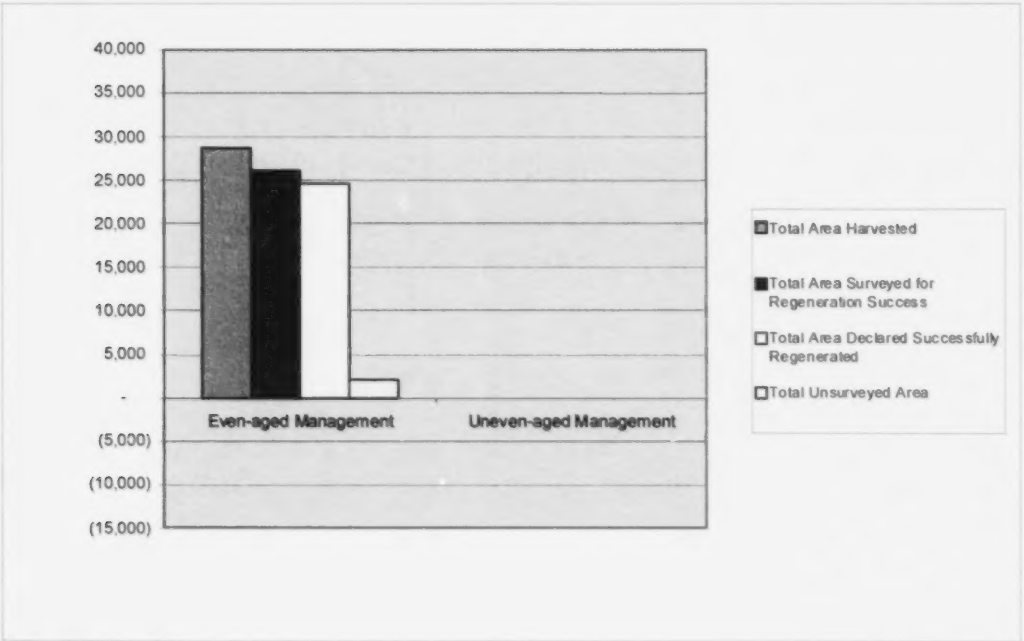
Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units
MU: Superior Forest

	AREA IN HECTARES (All Forest Units Combined)	*AREA IN HECTARES (All Forest Units Combined)*
	Even-aged Management	**Uneven-aged Management**
Total Area Harvested	28,676	-
Total Area Surveyed for Regeneration Success	26,192	-
Total Unsurveyed Area	2,108	-
Total Area Declared Successfully Regenerated	24,688	-
Total Area Surveyed Not Successfully Regenerated	-	-
NSR	1,505	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	94.3%	



Source:
total area harvested: Table RPFO-1
survey results: 1996 FMPM AR-7, AR-9, and silviculture records

Appendix B

Audit Team Members and Qualifications

Name	***Role***	***Responsibilities***	***Credentials***
Mr. Bruce Byford R.P.F. Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management & Silviculture Auditor	Audit Management & coordination Liaison with OMNR & Auditee Review documentation related to forest management planning and review and inspect silviculture practices Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC assessor training. 27 years of consulting experience in Ontario in forest management planning and resource inventory. Previous lead auditor work experience on 9 IFA audits and FSC certification assessments.
Mr. Al Stewart Arbex Senior Associate	Wildlife/First Nations Auditor	Review & inspect AOC documentation & practices First Nations consultation Determination of the sustainability component.	B.Sc. (Agr) ISO 14001 Lead Auditor Training. FSC assessor training. 38 years experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 9 IFA audits.
Mr. David Watton Arbex Senior Associate	Forest Management Planning & Public Participation Auditor	Review documentation and practices related to forest management planning & public participation Determination of the sustainability component.	B.Sc., M.Sc. ISO 14001 Lead Auditor Training. 38 years experience in natural resource management planning, land use planning, field operations, and policy development. Previous work experience on 8 IFA audits.

Mr. Guy Winterton Arbex Senior Associate	Forest Compliance Auditor	Review FMP and related documents to ensure compliance with FMPM and other regulations Review field operations for compliance with regulations and guidelines and other documents.	B.Sc.(Agr), M.Sc. ISO 14001 Lead Auditor Training. FSC assessor training. Previous work experience on 4 IFA audits. 38 years experience in all aspects of fisheries and wildlife planning, policy development, field operations and natural resource law enforcement. Previous work on 8 IFA audits.
Mr. Trevor Isherwood R.P.F. Tri-lac Forestry Services Arbex Associate	Silvicultural, Forest Management and Contractual Compliance Auditor	Review and inspect silvicultural practices and related documentation Review and inspect documents related to contractual compliance and socio-economics Determination of the sustainability component.	B.Sc.F. Former General Manager of SFL 38 years experience in forest management and operations. Previous work experience on 5 IFA audits.
Mr. Nick Baggs R.P.F. NGB Forest Management Consulting	Technical Advisor - SFMM	Analysis of SFMM model outputs and decision criteria and the determination of the sustainability component.	B.Sc.F. R.P.F. Previous work experience on IFA audits and FSC certification assessments. Experience as OMNR Planning Forester & Unit Forest.
Mr. Laurie Gravelines	Technical Advisor – SEIM Model	Analysis of SEIM model outputs and decision criteria.	B.A. Economics 29 years of experience as a Natural Resource Economist with the Manitoba and Ontario Governments.

Dorothy Dobrik GIS Specialist Arbex Forest Resource Consultants Ltd.	Administrative Assistant	Administrative Support to the audit including GIS support for the selection of sample sites	B.A. Geography, Diploma Forestry Tech Diploma GIS Specialist Previous administrative support in IFA and FSC audits

Appendix C

Independent Forest Audit Guiding Principles

There are eight guiding principles in the 2007 Draft Independent Forest Audit Process and Protocol, which guide the audit.

Commitment Commitment is reflected in vision, mission, and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.
Public Participation The process of sustainable forest planning, implementation, and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizen's Committee, native groups and other parties with an interest in the operations of the forest Unit.
Forest Management Planning The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve the goal. Certain minimum standards and procedures have been established upon which all management Units are evaluated.
Plan Implementation Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievements of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.
Support System System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

Monitoring The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.
Achievement of Management – Objectives & Forest Sustainability Periodic assessments of the management of the forest Unit operations and the forest Unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.
Contractual Compliance The licencee must comply with the specific licence requirements.

Appendix D

Glossary for List of Acronyms Used

List of Acronyms

ACOP	Annual Compliance Operations Plan
AHA	Available Harvest Area
Ai	Active Ingredient
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B&S	Barren and Scattered
CAS	Compliance Activity Schedule
CCFM	Canadian Council of Forest Ministers
CCGP	Chapleau Crown Game Preserve
CFMP	Contingency Forest Management Plan
CFSA	Crown Forest Sustainability Act
CHPN	Cultural Heritage Predictive Model
CSA-SFM	Canadian Standards Association Sustainable Forest Management
DFMP	District Fisheries Management Plan
DGPS	Differential Global Positioning System
DM	District Manager
EA	Environmental Assessment
EAAB	Environmental Assessments and Approvals Branch
EMS	Environmental Management System
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FMNCP	Forest Management Native Consultation Program
FMU	Forest Management Unit
FN	First Nation
FNTT	First Nation Task Team
FOCIS	Forest Operations Compliance Information System
FOIP	Forest Operations Information Program
FOIR	Forest Operation Inspection Reports
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FSC	Forest Stewardship Council
FTA	Forestry Tourism Agreements
FTG	Free-to-Grow
FU	Forest Unit
GIS	Geographic Information System
Ha	Hectares
HAT	Heritage Assessment Tool
HPCH	High Potential Cultural Heritage
IEA	Individual Environmental Assessment

IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
ISO	International Standards Organization
Km	Kilometres
Km^2	Square Kilometres
LCC	Local Citizens Committee
m	Metres
m^3	Cubic Metres
m^3/yr	Cubic Metres per Year
MOE	Ministry of Environment
MOT	Ministry of Tourism
MOU	Memorandum of Understanding
NDPEG	Natural Disturbance Pattern Emulation Guide
NESMA	Northeast Seed Management Association
NIC	Not in Compliance
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactorily Regenerated
OLL	Ontario Living Legacy
OMNR	Ontario Ministry of Natural Resources
OSB	Oriented Strand Board
PCT	Pre Commercial Thinning
Pj	Jack Pine
Pr	Red Pine
PRWST	Red / White Pine Seed Tree
PRWSH	Red / White Pine Shelterwood
Pw	White Pine
RBT	Resource Based Tourism
RD	Regional Director
R.P.F.	Registered Professional Forester
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
SAP	Supplemental Aerial Photography
SEIM	Socio-Economic Impact Modeling
SEV	Statement of Environmental Value
SFI	Sustainable Forestry Initiative
SFL	Sustainable Forest Licence
SFMM	Sustainable Forest Management Model
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SMA	Selected Management Alternative
SOP	Standard Operating Procedure
SPF	Spruce / Pine / Fir
STP	Silvicultural Treatment Packages
T&C 77	Term and Condition # 77 of the Class EA Report

T&C 34	Term and Condition #34 of the Class EA Report
TOR	Terms of Reference
YRS	Years

Appendix E

Summary of Input to Audit Process

The following briefly summarizes the contacts and the issues that emerged from audit investigations. Complete discussions of the issues, audit findings, assessments and any associated recommendations or suggestions are discussed throughout the body of the report.

General Public / Other Stakeholders

A notice explaining the requirement for the Independent Audit, the date, a map of the Forest, and an invitation to participate was placed in the Chapleau Express newspaper prior to the field audit. The notice included a toll-free telephone number and e-mail address for Arbex.

LCC members received an individual letter inviting their participation and offering the opportunity for a personal interview. An auditor attended a LCC meeting and interviewed 4 individual members.

The Chiefs of all First Nations listed in the 2006 FMP received letters and follow-up telephone calls explaining the audit process and requesting their involvement in the audit. Five First Nation contacts (3 individuals had participated on the First Nation Task Team (FNTT)) were interviewed. A summary of the IFAPP criteria specific to First Nations (2.3 – 2.3.4) was faxed/e-mailed to 5 band offices. The OMNR staff member with responsibilities for First Nation liaison (and also a participant on the FNTT) was questioned on several occasions.

A random sample of 35% of the individuals on the 2006 FMP mailing list were sent correspondence inviting them to complete a survey (mail-in or on-line) with respect to forest management on the Martel Forest. They were invited to contact the auditor by mail, toll-free telephone or e-mail to express their concerns and views. There were 6 responses.

Individual interviews (face to face and/or telephone) were held with managers, professionals and technical staff at Tembec (6), OMNR (11) and these included past and current OMNR Chapleau District Managers and the Plan Author.
Four tourism operators were contacted.

Principal issues that were identified included:

<u>General Public:</u>

- Concerns with the timing of slash pile burning relative to the moose hunt.

- Concern about the use of herbicides in forestry. Concern about poor utilization and slash on cutovers.
- Concern about access restrictions to remote lakes, increased forest access arising from forest management activities, and the lack of recreation management planning in forest management plans.
- Concerns over the sustainability of harvesting and the impacts of forest operations on wildlife populations.

The LCC:

- Concerns about the IEA process that provided the opportunity for 1 individual to delay or halt a planning and consultation process carried out over 2 years and involving numerous OMNR, company and community members.
- Concerns that the IEA process was accessible to individuals who did not fully participate in the standard consultation and issue resolution process.
- Concerns that broader environmental and philosophical/political issues were being debated through local FMP's at the expense of local companies and communities.
- Concerns about OMNR capacity to carry out its responsibilities due to funding constraints.
- Concerns about OMNR staff turnover and vacancies that hindered its ability to carry out its responsibilities.

Native Communities:

- Concern that First Nations should receive increased benefits from forest management.
- Concern that native values be respected in the forest management planning process.
- Concerns about lack of funding and human resources needed to effectively participate in forest management planning and decision making.

Tembec Representatives (including Plan Author):

- Concerns about the IEA process that provided the opportunity for 1

individual to delay or halt a planning and consultation process carried out over 2 years and involving numerous OMNR, company and community members.

- Concerns that the IEA process was accessible to individuals who did not fully participate in the standard consultation and issue resolution process.
- Concerns that broader environmental and philosophical/political issues were being debated through local FMP's at the expense of local companies and communities.
- Concerns about OMNR capacity to carry out its responsibilities due to funding constraints.
- Concerns about OMNR staff turnover and vacancies that hindered its ability to carry out its responsibilities.
- Concerns about the workload, cost and length of time associated with the FMP planning process.
- Concerns about the lost wood volume and costs associated with OMNR guidelines implementation.
- Skepticism about the scientific basis for some of the guidelines and the ability to measure the results due to continual change (moose guidelines to marten guidelines, to NDPEG to landscape guidelines).

Ontario Ministry of Natural Resources (including the past and current District Managers):

- Concerns about the IEA process that provided the opportunity for 1 individual to delay or halt a planning and consultation process carried out over 2 years and involving numerous OMNR, company and community members.
- Concerns that the IEA process was accessible to individuals who did not fully participate in the standard consultation and issue resolution process.
- Concerns that broader environmental and philosophical/political issues were being debated through local FMP's at the expense of local companies and communities.
- Concerns about OMNR capacity to carry out its responsibilities due to funding constraints.
- Concerns about OMNR staff turnover and vacancies that hindered its ability to carry out its responsibilities.

Remote Tourism Operators

- Concerns about protecting the wilderness and remote aspects of their businesses from road access and the visual and noise aspects of forest harvesting.
- Concern with respect to herbicide use in forestry.
- Concerns related to poor wood utilization and slash management.
- Concern with respect to the application of AOC prescriptions (i.e. riparian buffers).
- Concern with the adequacy of compliance monitoring on the Forest.
- Concern about forestry operations in the vicinity of remote tourism lakes
- One individual complained about limited accessibility to digital maps for the audit period.

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APPENDIX F

Activities Associated with Meeting Class EA Term and Condition 77 and 34

The following provides a brief summary of some of the activities that occurred over the audit term with respect to meeting Term and Condition 77 and 34 of the Class EA Report.

- The Chapleau OMNR developed a Communication Protocol Agreement with FN's to deal with issues including access to resource based opportunities.
- An agreement was completed to develop a "District Aboriginal Strategy".
- OMNR, Weyerhaeuser and Tembec held specific meetings with First Nations to discuss training and employment opportunities.
- A Cross Cultural Steering Committee was developed to identify and deliver training.
- Chapleau District developed a joint venture with Wawa District on an aboriginal Stewardship Ranger Program.
- Weyerhaeuser committed 1500m^3 to a Brunswick House sawmill operation.
- OMNR supported a Chapleau Cree technician enrolled in the Sault College Aboriginal Resource Technician Program.
- A Tripartite Forest Resource Agreement was developed with OMNR, Weyerhaeuser and the Missanabie Cree FN.
- Weyerhaeuser and OMNR attended Aboriginal Awareness workshops.
- OMNR and Tembec hosted an Annual meeting of FN communities and Tembec staff.
- Tembec hired a full time manager of Aboriginal Development.
- A Tembec Aboriginal Task Force was developed with sub- committees focusing on education, recruitment & awareness, natural resource harmonization and economic development.
- Cree-Tech (aboriginal company) was contracted to rectify photographs and delineate depletion coverage's for Tembec forests.
- Cree –Tech completed pit inspections and an Annual Compliance report for the Superior Forest.
- Cree –Tech completed a forest roads and water crossing inventory.
- Marten Contracting (Chapleau Cree) were contracted to haul wood waste for Tembec.
- Missanabie Cree had a Cone collection contract on the Superior Forest.
- A First Nation Task Team was formed in November of 2004 to increase aboriginal awareness and involvement in the FMP process and to support both the Superior- Martel and Pineland 2006 FMP's.

- Brunswick House FN was involved in the Ontario Living Legacy replacement exercise in 2004.
- OMNR funding was provided to all FNs to update native background reports.
- OMNR sponsored specific forest planning training that included;
    - FMP 101 (facilitated by FN)
    - Understanding Objectives, targets and Strategies
    - Culturally Modified trees in Chapleau District
    - Cultural heritage and FMP's.
- OMNR financially supported the Brunswick House FN natural resource development strategy.
- The Tembec Chapleau sawmill has been employing numerous aboriginals in different aspects of its operations.

Appendix G

Summary of the Objectives and Targets of the 2006 Superior-Martel Forest FMP

2006 Objectives	2006 Targets
Criterion I: CONSERVATION OF BIOLOGICAL DIVERSITY (Forest Diversity/Silviculture)	
Objective I (1): Ensure that current biological diversity of the forest is not significantly changed and where necessary and practical, is restored. (Policy Framework for Forest Sustainability).	Maintain all major boreal forest types, (listed below), that are currently found on the Superior-Martel Forest. The total change in the current area representation of a forest unit cannot change by more than 50% over the long term (100 years). Develop a Mixedwood Management Strategy by March 2007.
Objective I (2): Identify, consider and provide for the forest age class structure needed to maintain functional old growth ecosystem conditions in forest ecosites for all forest communities within their natural ranges as part of future forest conditions.	Maintain 50% of the total forest area, (available and reserved), associated with the old growth by Forest Unit Group. Implement the FSC target of 20% of the total forest area to contribute to old growth forest habitat.
Objective I (3): Maintain preferred/marginal habitat for the regionally selected indicator species within the bounds of natural variation.	Maintain preferred habitat for the regionally selected indicator species, listed below, at greater than -20% of the natural benchmark run.
Objective I (4): Provide marten core areas on the Superior-Martel Forest.	Maintain on the landscape 10 to 20 percent of the marten capable forest, in suitable habitat conditions arranged in core areas between 3000 and 5000 ha in size well distributed across the landscape, with a minimum of 75% of core area being comprised of forest in a suitable condition.
Objective I (5): Ensure that all known and newly discovered nesting sites for eagles, hawks, owls, osprey and herons are protected.	Zero destruction of eagle, hawk, owl, osprey and heron nests in areas of operations. Annual training will be supplied for operations staff and contractors in the identification of stick nests and procedures for reporting.
Objective I (6): Ensure that high conservation value forest attributes are identified and given due consideration for their	Maintain high conservation value forests as identified in the High Conservation Value Forest Assessment and defined by the Forest Stewardship Council.

protection on the forest. *Objective I (7):* Ensure the genetic diversity of trees is conserved. *Objective I (8):* Ensure the areas of red and white pine working groups are not reduced to less than the 1995 levels. Specific targets for restoring red and white pine will be set. Regeneration efforts should be focused on sites that previously supported pine. *Objective I (9):* The genetic diversity of white pine on the Superior-Martel Forest will be maintained or enhanced.	Maintain a supply of jack pine, black spruce, white spruce seed collected from local sources within seed zones 22 and 24 sufficient for regeneration requirements which will be approximately equal to the anticipated 5 year planting and seeding programs in SFMM. Increase the representation of Pine working group (Pw and Pr) to double the current level of 0.7% of the available Crown managed forest by the year 2106. - No decrease in total area of Pine working group. - Regenerate 100 hectares of PRW forest unit in Bw barren and scattered areas over the 5-year operating period over and above the white pine area harvest. - Regenerate an additional 500 hectares of PRW forest unit over the 5-year term of the plan contingent upon access to sufficient funding. Maintain a supply of white pine seed collected from local sources within seed zones 22 and 24 sufficient for regeneration requirements, which will be approximately equal to the anticipated 5-year planting, or 1.2 million white pine seed.
Criterion II: MAINTENANCE AND ENHANCEMENT OF FOREST ECOSYSTEM CONDITION AND PRODUCTIVITY (Silviculture/Forest Diversity)	
Objective II (1): Provide for the long-term health and vigour of Crown forests by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbance patterns and landscape patterns. (CFSA, PFSF). *Objective II (2):* Keep forest ecosystems productive and healthy.	Provide a range of disturbance sizes to move toward a more natural condition as described in the Forest Management Guide for Natural Disturbance Pattern Emulation and represented on the forest by the natural forest disturbance template. Survey 50% of the Not Sufficiently Regenerated (NSR) and barren and scattered land on the forest over the planning term and make recommendations for re-treatment. - Eliminate the area on the Superior-Martel Forest currently considered as backlog. - Maintain an annual Free-to-Grow assessment program equal to the amount of annual depletion. - Maintain the current network of pheromone trap stations. - Harvest the maximum number of hectares annually as

	prescribed by SFMM.
Objective II (3): Employ cost effective renewal and tending treatments that will provide a perpetual and continuous flow of quality wood fibre from the Superior-Martel Forest. *Objective II (4):* Reduce herbicide usage through timely field proven science and integrated pest management principles.	Implement a renewal program that will be self-funded based on the harvest contribution level to the Forest Renewal Trust for each 10-year planning period. - Pre-commercially thin 200 hectares per year and commercially thin 200 hectares per year, averaged between April 1, 2006 and March 31, 2011. For the aerial conifer release program, for the Superior Forest portion only, a 10% reduction in the yearly product (raw herbicide) employed from a benchmark average of 8,234 kg ai of glyphosate by 2009.
Criterion III: CONSERVATION OF SOIL AND WATER RESOURCES (Other Values)	
Objective III (I): Minimize the impacts on water quality and aquatic habitat within areas of harvest, renewal, tending and access operations.	Work towards continual improvement in operations near aquatic environments. - Zero compliance infractions on water crossing installations. Zero infractions on Area of Concern prescriptions around water bodies including lakes, streams and creeks. - Annual patrol of all primary roads for potential beaver problems. - Complete the water-crossing component of the Forest Roads and Water Crossings Initiative by March 2009.
Criterion IV: FOREST ECOSYSTEMS CONTRIBUTIONS TO GLOBAL ECOLOGICAL CYCLES (Social)	
Objective IV (1): Ensure that the available forest is protected from sustained deforestation or conversion to other uses	Reduce the amount of productive forest area lost to in-block roads and roadside slash piles by 30% of the following total landbase lost estimates indicated below. Minimize the amount of productive forest area lost as a result of severe site damage. - Reclaim 20 km of tertiary road annually.
Criterion V: MULTIPLE BENEFITS TO SOCIETY (Economic)	
Objectives V (1): Supply industrial and consumer wood needs while maintaining forest sustainability. (CFSA, PFSF)	Provide a consistent supply of roundwood from the Forest including: - 643,000 m3 SPF per year - 258,864 m3 Po per year - 150,061 m3 Bw per year

and to realize a predictable, continuous, and consistent flow of roundwood from the Superior-Martel Forest.	- 53,523 m3 of Other Conifer per year (includes Ce, La) - 4,700 m3 of Pine per year (includes Pw, Pr) - 1,033 m3 of Tolerant Hardwoods per year - Commercially thin 200 hectares annually - Limit the amount of decrease in wood supply for species groups to a maximum reduction of 10% between terms and while maintaining Po volume for first 2 terms. - Develop marketing strategy for increased utilization of available Bw volume by March 2007.
Objective V (2): Enhance the fur-bearer habitat on the unit.	- Maintain the snowshoe hare, marten and lynx habitat within the bounds of natural variation in SFMM analysis. - Over the 20-year planning period no more than 50% of the critical trapping habitat found on any one particular trapline will be harvested. Critical habitat is defined as within 250m from permanent creeks and lake shorelines.
Objective V (3): Ensure the protection of non-timber uses on the land base. (CFSA, PFSF).	Establish Resource Stewardship Agreements (RSA's) with affected and interested resource based tourism licence holders. - Consult with other forest user groups during the FMP process - Establish a balance between roaded and roadless area on the landbase. - Meet with the snowmobile club annually to avoid conflicts
Criterion VI: ACCEPTING SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT (Social)	
Objectives VI (1): Building relationships with First Nation communities.	- Increase understanding and participation with First Nation communities to recognize and conserve traditional values as they relate with forest operations, forest management planning, harvesting, and silvicultural activities. - Meet with First Nations annually to discuss planned operations.
Objective VI (2): Ensure the appropriate protection of non-timber values identified on the landbase.	OMNR will maintain an up-to-date Natural Resources Values Information System (NRVIS) database.

Objective VI (3): Conduct forestry practices in a manner such that all resource users may gain benefit from the forest, while recognizing that compromises need to be made to ensure the viability of resource based activities.	- Prepare resource stewardship agreements as requested by licensed resource-based tourist operators.
Criterion VII: MAINTAINING AND ENHANCING FRAMEWORKS FOR SUSTAINABLE FOREST MANAGEMENT	
Objective VII (1): To encourage and ensure compliance with legislative and regulatory requirements, which contribute to the sustainable management of Ontario's forests.	- Complete all required forest operations inspections as required in the Sustainable Forest Licence compliance plan.
Objective VII (2): Provide information from which to assess and report on forest sustainability.	Assess all harvest areas within 5-10 years of depletion for success of prescribed silvicultural prescription - Assess all plantations within 3 years of plantation establishment to ensure seedlings are healthy and growing successfully.
Objective VII (3): Assess what products of the Forest Research Partnership (FRP) or any other sources of Research & Development (R&D) that might result in gains in allowable cut effect or other improvements in forest management performance.	- Use the data and results of research programs to assist in improving overall forest management performance.